

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 SAV 5,2 a10

1. Edition

En

Testoil-ISO 4113

VA 6/100 H 1300 CR 124-10

0 460 306 266

supersedes

company **Saviem**

engine: **79721 - 75 kW**

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,2 mm

| 1. Settings | rev/min | Settings | Charge-air press. kp/cm ² | Difference in delivery cm ³ |
|---|---------|---|---|---|
| 1.1 Timing device travel | 1100 | 4,6 - 5,4 mm | | |
| 1.2 Supply pump pressure | 1100 | 5,5-6,0 kp/cm ² | | |
| 1.3 Full-load delivery without charge-air pressure | 700 | 50,5-51,5 cm ³ /1000 strokes | | max. 3,0 |
| Full-load delivery with charge-air pressure | - | cm ³ /1000 strokes | | |
| 1.4 Idle speed regulation | 300 | 7,0-13,0 cm ³ /1000 strokes | | max. 2,5 |
| 1.5 Start | 100 | min. 80,0 cm ³ /1000 strokes | | |
| 1.6 Full-load speed regulation | 1350 | 44,0-50,0 cm ³ /1000 strokes | | |

2. Test Specifications

Checking values in brackets

| | | | | |
|-------------------|-----------------------|---------------------|----------------|-------------------|
| 2.1 Timing device | rev/min | 800 | 1100 | 1300 |
| | mm | 1,5-2,5 (1,3-2,7) | (4,3-5,7) | 6,2-7,2 (6,0-7,4) |
| 2.2 Supply pump | rev/min | 200 | 1100 | 1300 |
| | kp/cm ² | (1,2-1,7) (1,0-1,9) | (5,3-6,2) | 6,3-6,7 (6,1-6,9) |
| Overflow delivery | rev/min | 500 | 1300 | |
| | cm ³ /10 s | 55-97 (40-112) | 55-97 (40-112) | |

2.3 Fuel deliveries

| Speed control lever | Delivery lever | rev/min | cm ³ /1000 strokes | Charge-air pressure kp/cm ² |
|---------------------|----------------|-----------------------|-------------------------------|--|
| End stop | Full | 1460 | max. 1,80 | |
| | | 1400 | 21,0-27,0 (20,0-28,0) | |
| | | 1350 | (43,0-51,0) | |
| | | 1300 | 52,0-55,0 (51,0-56,0) | |
| | | 700 | (50,0-52,0) | |
| | 500 | 46,5-50,5 (45,5-51,5) | | |
| | Stop | 1300 | 0 | |
| Idle stop | Full | 350-450 | 0 | |
| | | 300 | (6,0-14,0) | |
| | Start | 100 | min. 80 | |

5.85

A1

BOSCH

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A1

| Angle to the stop-plate | Pre-setting dimensions |
|---|---|
| Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$ | Pump Dimension IV = 3,8 mm Dimension V = 24,65 mm |

Test Specifications Distributor-type Fuel-injection Pumps

Testoil-ISO 4113

VE 478 F 2500 L 60
0 460 484 005

Overflow temperature 45° C

supersedes -
company: Peugeot
engine: X1D

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting --- mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|-----------------------|---|---|---|
| 1.1 Timing device travel | 2200 | 7,2-7,6 mm | | |
| 1.2 Supply-pump pressure | 2200 | 6,4-7,2 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | 2000 | 26,5-27,5 cm ³ /1000 strokes | | 2,5 (3,0) |
| Full-load delivery without charge-air pressure | 365 | 12,0-16,0 cm ³ /1000 strokes | | |
| 1.4 Idle regulation | 2650 | 9,0-15,0 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.5 Full-speed regulation | 100 | min. 40,0 cm ³ /1000 strokes | | |
| 1.6 Start | -- | -- | | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications

checking values in brackets ()

| | | | | | |
|-------------------|---|--------------------------|---------------------------|-------------------|---------------------------|
| 2.1 Timing device | n = rev/min mm | 800 1,0-2,0 (0,8-2,2) | 1600 4,6-5,2 (4,2-5,6) | 2200 (6,7-8,1) | 2400 7,9-8,7 (7,6-9,0) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 400 1,9-2,7 | 2500 7,1-7,9 | | |
| Overflow delivery | n = rev/min cm ³ /10 s | 500 55-111 (40-126) | 2500 55-111 (40-126) | | |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|-----------------------|--|---|
| End stop | 2750 | max. 6,0 | |
| | 2650 | (8,0-16,0) | |
| | 2450 | 25,5-27,5 (24,2-28,8) | |
| | 2000 | (24,7-29,3) | |
| | 1250 | 25,8-28,2 (24,7-29,3) | |
| | 600 | 20,0-23,0 (18,5-24,5) | |
| switch-off | 2500 | 0 | |
| Idle stop | 400 | max. 6,0 | |
| | 365 | (10,0-18,0) | |
| End stop | 100 | min. 40,0 | |
| | 450-550 | | |
| 2.4 Solenoid | Max cut-in voltage | min. 10 V | |
| | Min. voltage | rated voltage 12 V | |

3. Dimensions

for assembly
and adjustment
mm

| Designation | mm |
|-------------|-----------|
| K | 3,2-3,4 |
| KF | 5,7-5,9 |
| MS | 1,7-1,9 |
| SVS | max. 3,0 |
| XK | 19,5-21,5 |
| XL | 10,9-14,7 |
| A | |
| B | |

Observations

Clearance between idle position and stop for increased idling 0.5-1.0 mm

Test Specifications Distributor-type Fuel-injection Pumps

En

Testo-ISO 4113

VE 4/12 F 1100 R 123-1 Overflow temperature 45° C
0 460 424 007
DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
company: 4 BT-990
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|-----------------------|---|---|---|
| 1.1 Timing device travel | 900 | 2,3 - 2,7 mm | | |
| 1.2 Supply-pump pressure | 900 | 4,5 - 5,1 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | 900 | 85,7 - 86,7 cm ³ /1000 strokes | | 4,0 (4,5) |
| Full-load delivery without charge-air pressure | 375 | 18,5 - 24,5 cm ³ /1000 strokes | | 3,5 (4,5) |
| 1.4 Idle regulation | 1220 | 18,5 - 26,5 cm ³ /1000 strokes | | |
| 1.5 Full-speed regulation | 100 | min. 97,0 cm ³ /1000 strokes | | |
| 1.6 Start | | | | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications checking values in brackets ()

| | | | | |
|-------------------|----------------------------|-------------------|-----------|-------------------|
| 2.1 Timing device | n = rev/min | 750 | 900 | 1100 |
| | mm | 1,1-1,9 (0,8-2,2) | (1,8-3,2) | 3,1-3,9 (2,8-4,2) |
| 2.2 Supply pump | n = rev/min | 400 | 750 | 1100 |
| | bar (kgf/cm ²) | 2,3-2,9 | 3,8-4,4 | 5,3-5,9 |
| Overflow delivery | n = rev/min | 600 | | 1100 |
| | cm ³ /10 s | 55-138 (40-159) | | 55-138 (40-153) |

| 2.3 Fuel deliveries | Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|---------------------|-----------------------|--|---|
| End stop | | 1270 | max. 1,0 | |
| | | 1220 | (17,5-27,5) | |
| | | 1100 | 80,5-83,5 (79,0-85,0) | |
| | | 900 | (83,2-89,2) | |
| | | 750 | 85,8-89,8 (84,1-91,5) | |
| | | 600 | 85,0-89,0 (83,3-90,7) | |
| switch-off | | | | |
| Idle stop | | 450 | max. 1,0 | |
| | | 375 | (16,5-26,5) | |
| | | 300 | 44,0-50,0 (42,0-52,0) | |
| End stop | | 130 | min. 97,0 | |
| | | 200 | max. 85,0 | |

| 3. Dimensions | Designation | for assembly and-adjustment mm |
|---------------|-------------|--------------------------------------|
| | K | - |
| | KF | 5,1 - 5,4 |
| | MS | 1,4 - 1,6 |
| | SVS | 4,2 |
| | A | |
| | B | |

Observations
Stop check electric shutoff device at 375 min/1

| | | |
|--------------|----------------|-----------|
| 2.4 Solenoid | cut-in voltage | min. 10 V |
| | rated voltage | 12 V |

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/12 F 1150 R 123-2 Overflow temperature 45° C
0 460 424 008
DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
company: 4 BT-390
engine: 72 kW bei 2300

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers
Pre-stroke setting 0,3 mm ± 0,02 (0,04)

Test Instructions and Test Equipment
see VDT-W-460/.

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|-----------------------|---|---|---|
| 1.1 Timing device travel | 900 | 2,3 - 2,7 mm | | |
| 1.2 Supply-pump pressure | 900 | 4,8 - 5,4 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | 900 | 86,5 - 87,5 cm ³ /1000 strokes | | 4,0 (4,5) |
| Full-load delivery without charge-air pressure | 375 | 24,5 - 30,5 cm ³ /1000 strokes | | 3,5 (4,5) |
| 1.4 Idle regulation | 1230 | 20,0 - 28,0 cm ³ /1000 strokes | | |
| 1.5 Full-speed regulation | 100 | min. 97,0 cm ³ /1000 strokes | | |
| 1.6 Start | | | | |
| 1.7 Load-dependent port-closing | | | | |

| 2. Test Specifications | | checking values in brackets () | | |
|------------------------|--------------------------------------|---------------------------------|-------------------------|-------------------|
| 2.1 Timing device | n = rev/min | 750 | 900 | 1100 |
| | mm | 1,1-1,9 (0,8-2,2) | (1,8-3,2) | 3,2-4,0 (2,9-4,3) |
| 2.2 Supply pump | n = rev/min | 400 | 750 | 1100 |
| | bar (kgf/cm ²) | 2,5-3,1 | 4,2-4,8 | 5,6-6,2 |
| Overflow delivery | n = rev/min cm ³ /10 s | 400 55-138 (40-153) | 1150 55-138 (40-153) | |

| 2.3 Fuel deliveries | | | |
|---------------------|---|--|---|
| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
| End stop | 1290 | max. 2,0 | |
| | 1230 | (19,0-29,0) | |
| | 1150 | 80,2-83,2 (78,7-84,7) | |
| | 900 | (84,0-90,0) | |
| | 750 | 87,0-91,0 (85,3-92,7) | |
| | 400 | 86,7-90,7 (85,0-92,4) | |
| switch-off | | | |
| Idle stop | 450 | max. 2,0 | |
| | 375 | (22,5-32,5) | |
| | 300 | 46,5-52,5 (44,5-54,5) | |
| | End stop | 130 200 | min. 97,0 max. 85,0 |
| 2.4 Solenoid | cut-in voltage min. 10 Volt rated voltage 12 V | | |

| 3. Dimensions | |
|---|--------------------------------------|
| Designation | for assembly and adjustment mm |
| K | - |
| KF | 5,1 - 5,4 |
| MS | 1,4 - 1,6 |
| SVS | 4,2 |
| A | |
| B | |
| Observations Stop check electric shutoff device at 375 min/1 | |

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/12 F 1100 R 123-5 Overflow temperature 45° C
0 460 424 011
DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
company: 4 BT-390
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Banches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 900 | 2,3 - 2,7 mm | | |
| 1.2 Supply-pump pressure | 900 | 4,3 - 4,9 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | 900 | 70,5 - 71,5 cm ³ /1000 strokes | | 4,0 (4,5) |
| Full-load delivery without charge-air pressure | 375 | 21,5 - 27,5 cm ³ /1000 strokes | | 3,5 (4,5) |
| 1.4 Idle regulation | 1180 | 12,0 - 20,0 cm ³ /1000 strokes | | |
| 1.5 Full-speed regulation | 1180 | 12,0 - 20,0 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 97,0 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications checking values in brackets ()

| | | | | |
|-------------------|---|--------------------------|------------------|---------------------------|
| 2.1 Timing device | n = rev/min mm | 750 1,2-2,0 (0,9-2,3) | 900 (1,8-3,2) | 1100 3,3-4,1 (3,0-4,4) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 400 2,1-2,7 | 750 3,7-4,3 | 1100 5,2-5,8 |
| Overflow delivery | n = rev/min cm ³ /10 s | 400 55-138 (40-153) | | 1100 55-138 (40-153) |

| 2.3 Fuel deliveries | Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|---------------------|--------------------|---|--|
| End stop | | 1230 | max. 1,0 | |
| | | 1180 | (11,0-21,0) | |
| | | 1100 | 65,0-68,0 (63,5-69,5) | |
| | | 900 | (68,0-74,0) | |
| | | 750 | 70,5-74,5 (68,8-76,2) | |
| | | 400 | 65,0-69,0 (63,3-70,7) | |
| switch-off | | | | |
| Idle stop | | 450 | max. 1,0 | |
| | | 375 | (19,5-29,5) | |
| | | 300 | 41,3-47,3 (39,3-49,3) | |
| End stop | | 130 | min. 97,0 | |
| | | 200 | max. 85,0 | |
| 2.4 Solenoid | max. cut-in voltage | XXX min. 10 V | | |
| | rated voltage | rated voltage 12 V | | |

3. Dimensions for assembly and adjustment mm

| | |
|-------------|-----------|
| Designation | |
| K | - |
| KF | 5,1 - 5,4 |
| MS | 1,4 - 1,6 |
| SVS | 4,2 |
| A | |
| B | |

Observations
Stop check electric shutoff device at 375 min/1

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 OPE 2,3 K
1. Edition

En

Test ISO 4113

VE 4/10 F 2100 L 155-1 Overflow temperature 45° C
0460 404 036

supersede Opel
company: 2,3 TD
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|--|-----------------------|-------------------------------|---|---|
| | 1 500 | 5,1- 5,5 | 0,8 | |
| 1.1 Timing device travel | | mm | | |
| | 1 500 | 5,0- 5,6 | 0,8 | |
| 1.2 Supply-pump pressure | | bar (kgf/cm ²) | | |
| | 1 200 | 58,5-59,5 | 0,8 | 3,0 |
| 1.3 Full-load delivery with charge-air pressure | | cm ³ /1000 strokes | | |
| | 500 | 36,0-37,0 | 0 | |
| Full-load delivery without charge-air pressure | | cm ³ /1000 strokes | | |
| | 290 | 13,5-17,5 | 0 | 3,0 |
| 1.4 Idle regulation | | cm ³ /1000 strokes | | |
| | 2 425 | 15,0-21,0 | 0,8 | |
| 1.5 Full-speed regulation | | cm ³ /1000 strokes | | |
| | 100 | min. 48 | 0 | |
| 1.6 Start | | cm ³ /1000 strokes | | |
| | 1 500 | | 0 | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications

checking values in brackets ()

| | | | | | |
|----------------------------------|---|-------------------------|---------------------------|-------------------------|---------------------------|
| 2.1 Timing device LDA=0,8 bar | n = rev/min mm | 800 1,5-2,3(1,2-2,6) | 1 200 3,4-4,0(3,0-4,4) | 1 500 (4,6-6,0) | 2 100 7,9-8,7(7,6-9,0) |
| 2.2 Supply pump LDA=0,8 bar | n = rev/min bar (kgf/cm ²) | 500 2,7-3,3 | 1 200 4,4-5,0 | 2 100 6,4-7,0 | |
| Overflow delivery | n = rev/min cm ³ /10 s | 500 55-138(40-153) | | 2 100 55-138(40-153) | |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|--|--|---|
| End stop | 2 550 | max. 6,0 | 0,8 |
| | 2 425 | (13,5-22,5) | 0,8 |
| | 2 300 | 28,5-35,5(27,5-36,5) | 0,8 |
| | 2 100 | 46,3-48,7(44,8-50,2) | 0,8 |
| | 1 200 | (56,3-61,7) | 0,8 |
| | 800* | 43,5-44,5(41,3-46,7) | 0,3 |
| | 500 | (33,8-39,2) | 0 |
| switch-off | | | |
| Idle stop | 290 | (11,0-20,0) | |
| | 320 | 7,0-13,0(5,5-14,5) | |
| | 380 | max. 2,5 | |
| | 250 | min. 50 | |
| End stop | 400 | max. 47 | |
| | | | |
| 2.4 Solenoid | Min. cut-in voltage 10 V XXXXXXXXX rated voltage 12 V | | |

3. Dimensions

for assembly
and adjustment
mm

| Designation | mm |
|---|---------|
| K | 3,2-3,4 |
| KF | 5,7-6,0 |
| MS | 0,9-1,1 |
| SVS | 3,3 |
| A | |
| B | |
| Observations * LDA stroke = 6.2 mm Hydr. cold-start accelerator (0 V) 300 1/min 2,2-3,8 mm 800 1/min 3,7-6,2 mm 1 200 1/min max. 6,2 mm | |

Test Specifications Distributor-type Fuel-injection Pumps

Testoil-ISO 4113

VE 6/12 F 1050 R 159-4 Overflow temperature 45° C
0 460 426 044
DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
company: 6 BT-590
engine: 103,3 kW bei 2100

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

see VDT-W-460/.

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 750 | 3,6 - 4,0 mm | | |
| 1.2 Supply-pump pressure | 750 | 3,6 - 4,2 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | 900 | 83,0 - 84,0 cm ³ /1000 strokes | | 4,0 (4,5) |
| Full-load delivery without charge-air pressure | 375 | 22,0 - 28,0 cm ³ /1000 strokes | | 9,5 (4,5) |
| 1.4 Idle regulation | | | | |
| 1.5 Full-speed regulation | 1 125 | 36,0 - 44,0 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 97,0 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | - | | | |

2. Test Specifications checking values in brackets ()

| | | | | |
|-------------------|---|--------------------------|------------------|--------------------------|
| 2.1 Timing device | n = rev/min mm | 500 1,8-2,6 (1,5-2,9) | 750 (3,1-4,5) | 900 4,6-5,4 (4,3-5,7) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 500 2,5-3,1 | | 900 4,2-4,8 |
| Overflow delivery | n = rev/min cm ³ /10 s | 500 55-138 (40-153) | | 1050 55-138 (40-153) |

| 2.3 Fuel deliveries | Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|---------------------|--------------------|---|--|
| End stop | | 1175 | max. 1,5 | |
| | | 1125 | (35,0-45,0) | |
| | | 1050 | 78,5-81,5 (77,0-83,0) | |
| | | 900 | (80,5-86,5) | |
| | | 750 | 84,3-88,3 (82,6-90,0) | |
| | | 500 | 85,2-89,2 (83,5-90,9) | |
| switch-off | | | | |
| Idle stop | | 450 | max. 1,5 | |
| | | 375 | (20,0-30,0) | |
| | | 900 | 45,0-53,0 (44,0-54,0) | |
| End stop | | 130 | min. 97,0 | |
| | | 200 | max. 85,0 | |

| 3. Dimensions <small>for assembly and adjustment</small> | |
|--|-----------|
| Designation | mm |
| K | - |
| KF | 5,2 - 5,5 |
| MS | 1,4 - 1,6 |
| SVS | 0,8 |
| A | |
| B | |

Observations
Stop check electric shutoff device at 375 min/1

| | |
|--------------|--|
| 2.4 Solenoid | max. cut-in voltage min. 10 Volt rated voltage 12 V |
|--------------|--|

⑥

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 d 2

1. Edition

En

Testoil-ISO 4113

VE 6/12 F 1250 R 159-5 Overflow temperature 45° C
 0 460 426 045
 DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
 company: 6 8T-590
 engine: 96 kW bei 2500

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 min ± 0,02 (0,04)

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|--|-----------------------|-------------|---|---|
| 1.1 Timing device travel | 750 | 3,4 - 3,8 | | |
| | 750 | 3,8 - 4,4 | mm | |
| 1.2 Supply-pump pressure | - | | bar (kgf/cm ²) | |
| 1.3 Full-load delivery with charge-air pressure | 1 100 | 69,7 - 70,7 | cm ³ /1000 strokes | 4,0 |
| Full-load delivery without charge-air pressure | 375 | 16,0 - 22,0 | cm ³ /1000 strokes | 3,5 |
| 1.4 Idle regulation | 1 300 | 44,0 - 52,0 | cm ³ /1000 strokes | |
| 1.5 Full-speed regulation | 100 | min. 97 | cm ³ /1000 strokes | |
| 1.6 Start | - | | | |
| 1.7 Load-dependent port-closing | - | | | |

2. Test Specifications

checking values in brackets ()

| | | | | |
|-------------------|---|--------------------------|------------------|----------------------------|
| 2.1 Timing device | n = rev/min mm | 500 1,3-2,1 (1,0-2,4) | 750 (2,9-4,3) | 1 100 5,6-6,4 (5,3-6,8) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 500 2,7-3,8 | | 1 100 5,1-5,7 |
| Overflow delivery | n = rev/min cm ³ /10 s | 500 55-138 (40-153) | | 1 250 55-138 (40-153) |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) | 3. Dimensions for assembly and adjustment mm |
|---------------------|--|--|---|---|
| End stop | 1 390 | max. 1,5 | | |
| | 1 300 | (43,0-53,0) | | K |
| | 1 250 | 65,0-68,0 (63,5-69,5) | | KF |
| | 1 100 | (67,2-73,2) | | MS |
| | 750 | 75,7-79,7 (74,0-81,4) | | SVS |
| | 500 | 75,8-79,8 (74,1-81,5) | | |
| switch-off | | | | A B |
| Idle stop | 450 | max. 1,5 | | Observations Stop check electric shutoff device at 375 min/1 |
| | 375 | (14,0-24,0) | | |
| | 300 | 41,0-49,0 (40,0-50,0) | | |
| End stop | 130 | min. 97,0 | | |
| | 200 | max. 85,0 | | |
| 2.4 Solenoid | min. cut-in voltage 10 V XXXXXXX rated voltage 12 V | | | |

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4.85

A9

A9

Test Specifications Distributor-type Fuel-injection Pumps

En

Test ISO 4113

VE 6/10 F 2400 L 194
0 460 406 043

Overflow temperature 45° C

supersedes
company: 087T
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|-----------------------|---|---|---|
| 1.1 Timing device travel | 1500 | 1,5-1,9 mm | 1,3 | |
| 1.2 Supply-pump pressure | 1500 | 5,7- 6,3 bar (kgf/cm ²) | 1,3 | |
| 1.3 Full-load delivery with charge-air pressure | 1500 | 44,0-45,0 cm ³ /1000 strokes | 1,3 | max. 2,5 |
| Full-load delivery without charge-air pressure | 600 | 25,5-26,5 cm ³ /1000 strokes | 0 | |
| 1.4 Idle regulation | 415 | 6,0-10,0 cm ³ /1000 strokes | 0 | max. 2,0 |
| 1.5 Full-speed regulation | 2675 | 10,0-16,0 cm ³ /1000 strokes | 1,3 | |
| 1.6 Start | 100 | min. 40,0 cm ³ /1000 strokes | 0 | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications

checking values in brackets ()

| | | |
|-------------------|---|----------------------------------|
| 2.1 Timing device | n = rev/min mm | see page 2 |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | see page 2 |
| Overflow delivery | n = rev/min cm ³ /10 s | 600 (0 bar) 41-83(26-98) |
| | | 2400 (1,3 bar) 55-138(40-153) |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|-----------------------|--|---|
| End stop | 2825 | max. 6,0 | 1,3 |
| | 2675 | (9,0-17,0) | 1,3 |
| | 2400 | 35,0-36,0 (33,8-38,2) | 1,3 |
| | 1500 | (42,3-46,7) | 1,3 |
| | 1500 | 41,8-44,8 (41,1-45,5) | 1,05 |
| | 1000 * | 37,5-38,5 (35,8-40,2) | 0,7 |
| | 600 | 35,5-38,5 (34,0-40,0) | 1,3 |
| | 600 | (23,0-29,0) | 0 |
| switch-off | | | |
| electric | 400 | 0 | |
| Idle stop | 415 | (4,0-12,0) | |
| | 750 | max. 4,0 | |
| | 1000 | 13,0-14,0 | |
| EGR | 400 | min. 20 | |
| End stop | 500 | max. 30 | |

3. Dimensions

for assembly and adjustment mm

| Designation | Dimensions |
|-------------|------------|
| K | 3,2-3,4 |
| KF | 6,4-6,6 |
| MS | 1,7-1,9 |
| SVS | 5,8 |
| A | |
| B | |

Observations

* ALDA stroke = 6.0 mm

| | |
|--------------|--|
| 2.4 Solenoid | min. cut-in voltage 10 V rated voltage 12 V |
|--------------|--|

Timing device settings

| Engine speed 1/min | ALDA bar | Solenoid-op. valve V | Timing-device travel mm |
|-----------------------|-------------|-------------------------|----------------------------|
| 1200 | 1.3 | 12 | 0 - 0.8 |
| 1500 | 1.3 | 12 | 1.5 - 1.9 |
| 2400 | 1.3 | 12 | 5.4 - 6.2 |
| 600 | 1.3 | 0 | 1.7 - 3.3 |
| 1200 | 1.3 | 0 | 1.7 - 3.3 |
| 1500 | 1.3 | 0 | 2.5 - 4.1 |

Supply pump pressure settings

| | | | |
|------|-----|----|-----------|
| 600 | 1.3 | 12 | 3.3 - 3.9 |
| 1500 | 1.3 | 12 | 5.7 - 6.3 |
| 1500 | 1.3 | 0 | 6.3 - 7.3 |
| 2400 | 1.3 | 12 | 7.8 - 8.4 |

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 2,4 p
1. Edition

En

VE 6/10 F 2400 L 194-1 Overflow temperature 45° C
0 460 406 044

supersedes W
company: 087F
engine:

Test ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/.

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|--|-----------------------|-----------|---|---|
| 1.1 Timing device travel | 1500 | 1,5- 1,9 | 1,3 | |
| | 1500 | 5,7- 6,3 | 1,3 | |
| 1.2 Supply-pump pressure | 1500 | 44,0-45,0 | 1,3 | max. 2,5 |
| 1.3 Full-load delivery with charge-air pressure | 600 | 25,5-26,5 | 0 | |
| Full-load delivery without charge-air pressure | 415 | 6,0-10,0 | 0 | max. 2,0 |
| 1.4 Idle regulation | 2675 | 10,0-16,0 | 1,3 | |
| 1.5 Full-speed regulation | 100 | min. 40,0 | 0 | |
| 1.6 Start | | | | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications checking values in brackets ()

| | | |
|-------------------|---|---|
| 2.1 Timing device | n = rev/min mm | see page 2 |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | see page 2 |
| Overflow delivery | n = rev/min cm ³ /10 s | 600 (0 bar) 2400 (1,3 bar) 41-83(26-98) 55-138(40-153) |

| 2.3 Fuel deliveries | Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) | |
|---------------------|---------------------|-----------------------|--|---|--|
| End stop | | 2825 | max. 6,0 | 1,3 | |
| | | 2675 | (9,0-17,0) | 1,3 | |
| | | 2400 | 35,0-36,0 (33,8-38,2) | 1,3 | |
| | | 1500 | (42,3-46,7) | 1,3 | |
| | | 1500 | 41,8-44,8 (41,1-45,5) | 1,05 | |
| | | 1000 * | 37,5-38,5 (35,8-40,2) | 0,7 | |
| | | 600 | 35,5-38,5 (34,0-40,0) | 1,3 | |
| | | 600 | (23,0-29,0) | 0 | |
| | | switch-off | | | |
| | | mech. | 2400 | 0 | |
| Idle stop | | 415 | (4,0-12,0) | | |
| | | 750 | max. 4,0 | | |
| EGR | | 1000 | 13,0-14,0 | | |
| End stop | | 400 | min. 20 | | |
| | | 500 | max. 30 | | |

| 3. Dimensions | Designation | for assembly and adjustment mm |
|---------------|-------------|--------------------------------------|
| | K | 3,2-3,4 |
| | KF | 6,4-6,6 |
| | MS | 1,7-1,9 |
| | SVS | 5,8 |
| | A | |
| | B | |

Observations
* ALDA stroke = 6.0 mm

| | |
|--------------|--|
| 2.4 Solenoid | min. cut-in voltage 10 V rated voltage 12 V |
|--------------|--|

Timing device settings

| Engine speed 1/min | ALDA bar | Solenoid-op. valve V | Timing-device travel mm |
|-----------------------|-------------|-------------------------|----------------------------|
| 1200 | 1.3 | 12 | 0 - 0.8 |
| 1500 | 1.3 | 12 | 1.5 - 1.9 |
| 2400 | 1.3 | 12 | 5.4 - 6.2 |
| 600 | 1.3 | 0 | 1.7 - 3.3 |
| 1200 | 1.3 | 0 | 1.7 - 3.3 |
| 1500 | 1.3 | 0 | 2.5 - 4.1 |

Supply pump pressure settings

| | | | |
|------|-----|----|-----------|
| 600 | 1.3 | 12 | 3.3 - 3.9 |
| 1500 | 1.3 | 12 | 5.7 - 6.3 |
| 1500 | 1.3 | 0 | 6.3 - 7.3 |
| 2400 | 1.3 | 12 | 7.8 - 8.4 |

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 2,4 b

1. Edition

En

PES 3 A 80 D 410/3 RS 1313

RSV 400-1250 AOC 2193 L

supersedes

company Holder

Komb.-Nr. 0 400 463 149

engine: 6001-3
36 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
A. Fuel Injection Pump Settings Port closing difference control-rod travel 9 mm and max. 9 - 10° camshaft

Port closing at prestroke $1,7-1,8$
(1,65-1,85) mm (from BDC) RW = 7,5-9,0 mm

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1250 | 9,4-9,5 | 5,7-5,8 | 0,2(0,35) | | | |
| 400 | 6,7-6,9 | 1,0-1,6 | 0,2(0,3) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|--------------------|-----------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 22 | 400 | 6,3 | 1250 | 9,4-9,5 |
| | x = 4,0 | | | | | | 400 | 6,7-6,9 | 500 | 9,4-9,6 |
| ca. 49 | 8,4 | 1290-1300 | | | | | 510-570 | = 2,0 | | - |
| 2a | 4,0 | 1330-1360 | | | | | | | | |
| | 1495 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery idle 5 | | 4a Idle stop | |
|--|------------------------------------|--|----------------------------------|------------------------------------|-------------------------------|------------------------------------|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1250 | 56,5-57,5 (55,0-59,0) | 1290-1300* | - | - | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than ccl. 2

5.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 2,0 b 1

1. Edition

En

PES 2 A 80 D 410/3 RS 1329

RSV 400-1250 AOC 2193 L

supersedes

company Holder

engine VD 6001/2

Komb.-Nr. 0 400 462 055

Port closing difference control-rod travel 9 mm and max. 9 - 10° camshaft

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,7-1,8}{(1,65-1,85)}$ mm (from BDC) RW = 9,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1250 | 9,7-9,8 | 6,0-6,1 | 0,2(0,35) | | | |
| 400 | 6,7-6,9 | 1,1-1,7 | 0,2(0,3) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel mm 2 | | Intermediate rated speed 4 5 6 | | | 4 Control-lever deflection in degrees 7 | Lower rated speed rev/min 8 | | Control rod travel mm 9 | | 3 Torque control rev/min 10 | Control rod travel mm 11 | |
|---|-------------------------------|------------|-----------------------------------|---|---|--|-----------------------------------|---------|-------------------------------|----|-----------------------------------|--------------------------------|---|
| | mm | mm rev/min | | | | | rev/min | mm | rev/min | mm | | | |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 20 | 400 | 6,3 | - | - | - | - | - |
| | x = 4,0 | | | | | | 400 | 6,7-6,9 | | | | | |
| ca. 46 | 8,7 | 1290-1300 | | | | | 505-565 | = 2,0 | | | | | |
| 2a | 4,0 | 1330-1360 | | | | | | | | | | | |
| | 1495 | 0,3-1,4 | | | | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ... rev/min | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 | | 4a Idle stop | |
|--|-------------------------------|--|---------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|---------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1250 | 59,5-60,5 (58,0-62,0) | 1290-1300* | - | - | - | - | - | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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A15

445

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 2,4 a 1
1. Edition

En

PES 3 A 80 D 410/3 RS 1336 RSV 400-1250 AOC 2193 L
Komb.-Nr. 0 400 463 150
1-2-3 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes Holder
company: VD 6001-4
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,7-1,8}{(1,65-1,85)}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1230 | 11,0+0,1 | 7,0 - 7,1 | 0,2 (0,35) | | | |
| 400 | 7,9-8,1 | 1,3 - 1,9 | 0,2 (0,3) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|----------------------------|------------------------------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-0,7 | - | - | - | ca.24 | 400 | 7,5 | - | - |
| | X = 4,25 | | | | | | 100 | min.19,5 | | |
| ca.50 | 10,0 | 1270-1280 | | | | | 400 | 7,9-8,1 | | |
| 2a | 4,0 | 1335-1365 | | | | | 550-610 | = 2,0 | | |
| | 1500 | 0,3 - 1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ...) | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 4a Idle stop | |
|--|------------------------------------|--|----------------------------------|------------------------------------|-----------------------------|------------------------------------|----------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1230 | 70,0 - 71,0 (68,5 - 72,5) | 1270-1280* | - | - | 100 | 19,5-21,0 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 i 1

1. Edition

En

PES 4 A 80 D 410 RS 2094
Komb.-Nr. 0 400 874 210

RSV 350-750 A 0 B 764 L

supersedes -
company: Daimler-Benz
OM 314
engine: 35 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC; RW = 9,0-12,0 mm)

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 700 | 8,2-8,3 | 4,5-4,6 | 0,2(0,35) | | | |
| 350 | - | 0,6-1,4 | 0,2(0,35) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever mm | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | Lower rated speed | | 3 Torque control | |
|--|--------------------|------------|--------------------------|---|---|---------------------------------------|-------------------|-----------------------|------------------|-----------------------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,7 | - | - | - | ca. 21 | 350 | 6,0 | - | - |
| | x = 4,0 | | | | | | 100 | min. 19,5 | | |
| ca. 33 | 7,2 | 750-755 | | | | | 350 | 5,9-6,1 | | |
| 2a | 4,0 | 801-814 | | | | | 380-420 | = 2,0 | | |
| | 950 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit. Note: changed to) rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|--------------------------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 700 | 45,0-46,0 (43,5-47,5) | 750-755* | - | - | 100 | 80,0-90,0 (77,0-93,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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A17

A17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 c 1

1. Edition

En

PES 4 A 80 D 410 RS 2094 Z
Komb.-Nr. 0 400 874 187

RSV 350-1200 A 2 C 1004 L

supersedes
company Daimler-Benz
engine OM 314
48 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC) RW 9,0 - 12,0 mm
(2,10-2,30)

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1180 | 8,4-8,5 | 4,8-4,9 | 0,2 (0,35) | | | |
| 350 | 6,6-6,8 | 1,0-1,6 | 0,2 (0,3) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | | 350 | 6,2 | 1180 | 8,4-8,5 |
| | x = 4,0 | | | | | | 100 | min.19,5 | 500 | 9,1-9,2 |
| | | | | | | | 350 | 6,6-6,8 | 1000 | 8,6-8,9 |
| ca. 46 | 7,4 | 1220-1230 | | | | | 725-785 | = 2,0 | | |
| 2a | 4,0 | 1315-1345 | | | | | | | | |
| | 1450 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery idle | | 5 | | 4a Idle stop | |
|-----------------------------|--------------|------------------------------------|---|----------------------------------|------------------------------------|-----------------------------|------------------------------------|--------------|-------------------------------|--------------|--|
| Test oil temp. 40°C (104°F) | rev/min 1 | cm ³ /1000 strokes 2 | Note: changed to ... rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 | | |
| | 1180 | 48,0-49,0 (46,5-50,5) | 1220-1230* | 500 | 43,0-45,0 (41,5-46,5) | 100 | 80,0-90,0 (77,0-93,0) | - | - | | |
| | | | | 1000 | 47,0-49,0 (45,5-50,5) | | =13,8-14,2 mm RW | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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7.85

A18

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Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 90 D 410 RS 2124 RQ 300/1250 AB 812 DL

Komb.-Nr. 0 400 646 199

supersedes:

company: Daimler-Benz

engine: OM 360

141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1250 | 10,2+0,1 | 8,6 - 8,7 | 0,3 (0,45) | | | |
| 300 | 6,3-6,5 | 1,2 - 1,8 | 0,2 (0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ④ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|------------------------|--|-------------------------------|------------------------------------|--------------------------------|---------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 9,2 4,0 | 1295-1310 1345-1375 | 300 | 5,6 | 100 300 360-400 = 2,0 500 | min.7,9 5,5-5,7 max.1,0 | - | - |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1295-1310 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|-------------------------------------|---------------------|----------------------------------|-------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm Control rod travel 7 |
| 1250 | 86,0-87,0 (84,0-89,0) | - | 800 | 80,0-83,0 (78,0-85,0) | 100 | min. 16,0 mm 30W |

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 18

1. Edition

PES 3 A 85 D 410/3 RS 2642
Komb.-Nr. 0 400 863 009

RSV 325-1250 A 8 C 2168-2 L

En

superseded by
KHD
company F 3 L 913
engine 45 kW/2500 min⁻¹
Tractor DX 3.50

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1250 | 10,9+0,1 | 7,1-7,2 | 0,3(0,5) | | | |
| 325 | 7,9-8,1 | 0,7-1,3 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|--------------------------|----------------------------------|--------------------------|---|---|-------------------------------------|---------|--------------------------|------------------|--------------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 22 | 325 | 7,5 | 1250 | 10,9-11,0 |
| | x = 4,0 | | | | | | 325 | 7,9-8,1 | 500 | 11,4-11,5 |
| | | | | | | | 480-540 | = 2,0 | 1045 | 11,0-11,2 |
| ca. 51 | 9,9 | 1290-1300 | | | | | | | | |
| 2a | 4,0 | 1365-1395 | | | | | | | | |
| | 1520 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|-------------------------------|------------------------------|-------------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|-----------------------|----|
| Test oil temp. 40°C (104°F) | | Note: changed to ... rev/min | | | | | | Control rod travel mm | |
| rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | mm |
| 1 | 2 | 3 | 5 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1250 | 70,5-71,5 (68,5-73,5) | 1290-1300* | 800 | 62,5-64,5 (60,0-67,0) | | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

BOSCH

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Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 4,0 a 1

1. Edition

En

PES 4 A 90 D 410 RS 2666 RQV 300-1400 AB 1201-1 L
Komb.-Nr. 0 400 844 084

supersedes -

company: Daimler-Benz

engine: OM 364

55 kW

Set the stop screw to control-rod travel 3 - 3,5 mm!
Values apply to fuel-injection test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,25-2,35 \\ (2,20-2,40) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1400 | 10,9+0,1 | 6,4-6,5 | 0,3(0,45) | | | |
| 300 | 8,7-8,9 | 0,8-1,2 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|---------------------------------------|-------------|-----------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1500 | 15,2-17,8 | - | - | - | ca. 21 | 100 | max. 10,3 | 300 | 0,8-1,3 |
| ca. 63 | 9,9 | 1440-1450 | | | | | 300 | 8,7-8,9 | 500 | 2,3-2,8 |
| | 4,0 | 1545-1575 | | | | | 570-630=2,0 | | 750 | 4,1-4,3 |
| | 1630 | 0-1,0 | | | | | | | 500 | 8,6 |

Torque control travel a = 1,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|---|---|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1400 | 63,5-64,5 (61,5-66,5) | 1440-1450* | 500 | 50,0-53,0 (47,5-55,5) | 100 | 78,0-88,0 (75,0-91,0) =16,3-16,7 mm RW | 1400 | 10,9+0,1 |
| | | | 900 | 52,5-55,5 (50,0-58,0) | | | 500 | 12,3+0,1 |
| | | | | | | | 800 | 12,0+0,2 |
| | | | | | | | 1200 | 11,2+0,3 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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A21

A21

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 6,0 b

1. Edition

En

PES 6 A 90 D 410 RS 2667 RSV 300-1400 AOC 2006-2 L

supersedes Daimler-Benz

Komb.-Nr. 0 400 876 331

company OM 366

Values apply to fuel-injection test tubing

engine 100 kW

1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,25-2,35$ mm (from BDC)
 $(2,20-2,40)$

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1380 | 10,7+0,1 | 6,5 - 6,6 | 0,3 (0,45) | | | |
| 300 | 7,8-8,0 | 0,6 - 1,0 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 16 | 300 | 8,1 | 1380 | 10,7-10,8 |
| | x = 4,5 | | | | | | 100 | min. 19,5 | 500 | 11,9-12,0 |
| ca. 66 | 9,7 | 1430-1440 | | | | | 300 | 8,0 - 8,2 | 900 | 11,3-11,5 |
| 2a | 4,0 | 1490-1520 | | | | | 430-490 | = 2,0 | | |
| | 1650 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 | | 4a Idle stop | |
|-----------------------------|-------------------------------|----------------------------|---------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|---------|-----------------------|-----------------------|---|
| Test oil temp. 40°C (104°F) | | Note changed to) rev/min | | | | | | | | Control rod travel mm | |
| rev/min | cm ³ /1000 strokes | 3 | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm | 8 | 9 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | |
| 1380 | 65,0 - 66,0 (63,0 - 68,0) | 1430-1440* | 500 | 53,0 - 55,0 (50,5 - 57,5) | 100 | 78,0-88,0 (75,0-91,0) | - | - | | | |
| | | | | | 300 | 6,0-10,0 (4,0-12,0) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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A22

ALL

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 3,9 c

1. Edition

En

PES 4 A 90 D 320 RS 2670 RSV 350-1150 A2B 2129-5 R
Komb.-Nr. 9 400 085 244

supersedes

company MWM

engine PID A 229-4
57 KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1150 | 10,7+0,1 | 8,9-9,0 | 0,3 (0,5) | | | |
| 325 | 6,4-6,6 | 1,3-1,7 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|-------------------------------|---------------------------------------|--------------------------|---|---|--|-------------------|-------------------------------|------------------|--------------------------------|
| | | | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 18 | 325 | 6,0 | 1150 | 10,7-10,8 |
| | | x = 4,5 | | | | | 100 | min. 19,0 | 500 | 11,7-11,8 |
| | | | | | | | 325 | 6,4-6,6 | 800 | 11,6-11,8 |
| ca. 48 | 9,7 | 1190-1200 | | | | | 430-490 | = 2,0 | 950 | 11,2-11,3 |
| 2a | 4,0 | 1250-1280 | | | | | | | | |
| | 1400 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit. Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 4a Idle stop | |
|--|------------------------------------|---|----------------------------------|--|-----------------------------|------------------------------------|----------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1150 | 89,0-90,0 (87,0-92,0) | 1190-1200* | 500 800 | 93,0-95,0 (91,5-97,5) 98,5-100,0 (96,0-103,0) | 100 | 19,0-21,0 mm RW | 325 | 4,0-4,5 |

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

A23

A23

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 5,9 d

1. Edition

En

PES 6 A 90 D 320 RS 2671

RSV 350-1150 A 2 B 2129-5 R

supersedes MWM

Komb.-Nr. 9 400 085 242

company PID A 229-6

engine: 85 kW

All test specifications are valid for: Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC)

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1150 | 10,8+0,1 | 9,0 - 9,1 | 0,3 (0,5) | | | |
| 325 | 6,4-6,6 | 1,3 - 1,7 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Degree of deflection of control lever 1 | Upper rated speed rev/min | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|----------------------------|------------------------------------|--------------------------|---|---|---|-------------------|----------------------------|---------------------|-----------------------------|
| | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| Toose | 800 | 0,3 - 1,0 | - | - | - | ca. 18 | 325 | 6,0 | 1150 | 10,8-10,9 |
| | | X = 4,5 | | | | | 100 | min. 19,0 | 500 | 11,9-12,0 |
| ca. 48 | 9,8 | 1190-1200 | | | | | 325 | 6,4 - 6,6 | 900 | 11,6-11,9 |
| 2a | 4,0 | 1250-1280 | | | | | 430 - 490 | = 2,0 | | |
| | 1400 | 0,3 - 1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|------------------------------------|--|----------------------------------|------------------------------------|-----------------------------|------------------------------------|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1150 | 90,0 - 91,0 (89,0 - 92,0) | 190-1200* | 500 | 96,0 - 98,0 (94,5 - 99,5) | 100 | 19,0-21,0 mm RW | 325 | 4,0-4,5 |
| | | | 900 | 98,5 - 100,5 (96,0 - 103,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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A24

A24

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 95 D 320 RS 2693 RQ 300/1300 AB 1205 R
Komb.-Nr. 0 400 846 539
Values apply to fuel-injection test tubing
1 680 750 015

supersedes:
company: DAF
engine: DNTD 620
110 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 850 | 10,8+0,1 | 6,4-6,6 | 0,35(0,6) | | | |
| 300 | 6,1-6,3 | 0,7-1,0 | 0,35(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation ④ | | | | Idle speed regulation ⑤ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Test specifications rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 800 | 19,2-20,8 | 850 | 20,0 | 9,3 | 1335-1350 | 300 | 6,2 | 100 | min.7,6 | 850 | 11,5-11,6 |
| | VH = max. 46° | | | 4,0 | 1400-1430 | | | 300 | 6,1-6,3 | 1290 | 10,3-10,4 |
| | | | | | | | | 520-560=2,0 | | 970 | 11,1-11,3 |
| | | | | | | | | | | 1080 | 10,5-10,7 |

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation: At 1335-1350 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|-------------------------------------|---------------------|----------------------------------|-------------------------------------|--|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| 1290 | 59,0-71,0 (66,5-73,5) | 850 | 850 | 64,0-66,0 (62,0-68,0) | 100 | 125,0-135,0 (122,0-138,0) |

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 100 D 410 RS 3039 RQ 200/1100 AB 1215 L
Komb.-Nr. 0.401 246 013

supersedes
company RABA
D 2156 MTKLL 6
engine: 20G KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,6-1,7}{(1,55-1,75)}$ mm (from BDC) RW=9,0-12,0 mm

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 13,4+0,1 | 15,0-15,2 | 0,3(0,6) | | | |
| 200 | 6,7-6,9 | 1,0-1,6 | 0,35(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | Test specifications Control rod travel mm 5 rev/min 6 | | Idle speed regulation Setting point rev/min 7 | | Test specifications Control rod travel mm 9 rev/min 10 | | Torque control rev/min 11 Control rod travel mm 12 | |
|---|-----------|---|------|--|-----------|--|-----|---|---------|---|-----------|
| 600 | 19,2-20,8 | 600 | 20,0 | 12,4 | 1145-1160 | 200 | 6,8 | 100 | min.8,2 | 1100 | 13,5-13,6 |
| VH= | max. 46° | | | 4,0 | 1195-1225 | | | 200 | 6,7-6,9 | 600 | 14,7-14,8 |
| | | | | | | | | 325-365= | 2,0 | 870 | 14,3-14,5 |
| | | | | | | | | | | 920 | 13,7-14,0 |

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /-1000 strokes 2 | | Control rod stop rev/min 3 | Fuel delivery characteristics rev/min 4 cm ³ /-1000 strokes 5 | | Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7 | |
|--|---|----------------------------------|--|---|---|------------------------------|
| LDA 1100 | 0,7 bar 150,0-152,0 (148,0-154,0) | - | LDA 750 | 0,7 bar 163,0-166,0 (160,5-168,5) | 100 | 195,0-205,0 (192,0-208,0) |
| | | | LDA 500 | 0 bar 107,5-110,5 (105,5-112,5) | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

RAB 10,8 b

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 6 A..RS 3039 + RQ..AB 1215 L | 0,70 | 0 | 14,5-14,6 |
| | | 0,45 | 11,5-11,6 |
| | | 0,33 | 13,7-13,8 |
| | | | 12,1-12,3 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,2 a

1. Edition

En

PE 8 AM 90 D 321 RS 2014 RQV 275-1500 AB 837 R

Komb.-Nr. 0 405 058 201

1-8-7-3-6-5-4-2 je 45 ° ± 0,5 ° (± 0,75 °)

supersedes -
company: RVI
engine: HS 115
191 KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

| Port closing at prestroke | | 2,15-2,25 (2,10-2,30) | | mm (from BDC) | | Port closing mark cyl. 7 | | |
|---------------------------|--------------------|------------------------------|------------------------------|--------------------|------------------------------|--|--|--|
| Rotational speed | Control rod travel | Fuel delivery | Difference | Control rod travel | Fuel delivery | Spring pre-tensioning (torque-control valve) | | |
| rev/min | mm | cm ³ /100 strokes | cm ³ /100 strokes | mm | cm ³ /100 strokes | mm | | |
| 1 | 2 | 3 | 4 | 2 | 3 | 6 | | |
| 1200 | 10,2+0,1 | 8,7-8,8 | 0,3(0,45) | | | | | |
| 275 | 6,6-6,8 | 1,6-2,0 | 0,4 (0,6) | | | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|------------|------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1600 | 15,2-17,8 | - | - | - | ca. 12 | 100 | min. 8,2 | 100 | 0-0,3 |
| ca. 66 | 9,2 4,0 | 1595-1605 1660-1690 | | | | | 275 | 6,6-6,8 | 275 | 1,2-1,3 |
| | | | | | | | | | 325 | 1,6-1,8 |
| | | | | | | | | | 450 | 2,3-2,5 |
| | | | | | | | 325-475 | | 1600 | 9,1 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery | | Rotational-speed limitation | | Fuel delivery characteristics | | Starting fuel delivery | | Torque-control | |
|--------------------|-------------------------------|-----------------------------|---------|-------------------------------|-------------------------------|------------------------|--|----------------|-----------------------|
| Control-rod stop | | intermediate speed | | high idle speed | | idle switching point | | travel | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4a | 4 | 5 | 6 | 7 | 8 | 9 |
| 1200 | 87,0-88,0 (85,0-90,0) | 1595-1605 * | | - | - | 100 | 158,0-168,0 (155,0-171,0) = 17,5-17,9 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

B4

BOSCH

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34

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4M 55 C 320 RS 152-1
RSF 360/2300 M 60
Komb.-Nr. 0 400 074 950
1- 3- 3 - 2
0-90-180-270

supersedes-

company: Daimler-Benz
engine: OM 601
54 kW
USA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,00-2,10$ mm (from BDC)
(1,95-2,15) Control rod travel
RW = 2,0,0-22,0 mm

Note: Before starting testing, observe the important instructions on the reverse.

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (compensating valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 12,1+0,1 | 3,4-3,5 | 0,25(0,3) | | | |
| 335 | 5,4-5,6 | 0,5-0,6 | 0,1(0,15) | | | |
| 1800 | | | 0,25(0,3) | | | |
| 2200 | | | 0,25(0,3) | | | |

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

| Lower rated speed | | | Upper rated speed | | | Variations in control rod travel | | |
|---------------------------------------|--------------------------|-----------------------------|---------------------------------------|--------------------------|-----------------------------|----------------------------------|-----------------------------|--------------------------|
| Degree of deflection of control lever | Control rod travel mm | Rotational speed rev/min | Degree of deflection of control lever | Control rod travel mm | Rotational speed rev/min | | Rotational speed rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 8-12 | min. 9,5 | 225 | 50 | 11,3-11,5 | 2200 | | 100 | min. 20,1 |
| ① | 5,4-5,6 | 335 | ⑦ | 5,5-5,7 | 2500 | | ⑬ 1800 | 11,7-11,9 |
| ② | 4,2-4,4 | 400 ** | ⑧ | - | | | ⑭ 2200 | 11,3-11,5 |
| ③ | - | | ⑨ | 0-1,0 | 2950 | | | |
| ④ | 1,5 | 590-690 | ⑩ | | | | | |
| ⑤ | | | ⑪ | | | | ⑥ | Switching point |

C. Settings for Fuel Injection Pump with Governor Mounted

| Full-load delivery | | Full-load speed regulation | Variations in fuel delivery | | Starting fuel delivery Idle | | Difference |
|--------------------|-------------------------------|----------------------------|-----------------------------|-------------------------------|--------------------------------|---------------------------------|-------------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | cm ³ /1000 strokes |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2200 | 36,0-38,0 (35,0-39,0) | 2500 * RW = 5,5-5,7 | 1800 | 36,0-37,5 (35,0-38,5) | 100 | min. 55 5,0-6,0 (4,5-9,0) | 6,0 1,0 (1,5) |
| | | | 1000 | 34,0-35,0 (33,0-36,0) | 2500 | 14,0-19,0 (13,0-20,0) | 2,5 (3,0) |

Checking values in brackets

* Ca. 5,0 mm less control rod travel than in Column 2

1. ** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4.1-4.5 mm)
2. Setting the idle control lever position:
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. Checking the idle speed auxiliary spring shut-off
Control lever position 50° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm.
Control lever position 48.5° ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. Checking the pneumatic shut-off box
Control lever on idle stop.
At $n = 335$ rpm and $p_u = 450$ mbar, the control rod must travel rapidly to control rod position = 0 mm.
5. Overflow valve 1 469 990 351,
6. Port closing difference between largest/smallest value max. 1° camshaft angle.
7. Checking the electronic idle speed control
Control lever on idle stop.
At $n = 360$ rpm and $I = 1.8$ A, control rod travel = (12.0 - 13.4 mm)
Delivery = (31.0-38.0 cm³/1000 strokes).
Starting test with $I = 1.8$ A.
At $n = 2950$ rpm, control lever on full load stop, $I = 3$ A (briefly).
Control rod travel = 0-1 mm.
8. Port closing setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3) $^\circ$ camshaft angle after cylinder 1.
9. Checking the governor with altitude compensator box

| Speed rpm | Pressure (absolute) mbar | Control rod travel deviation from max. full load control rod travel (mm) |
|-----------|--------------------------|--|
| 1000 | 930 | 0.1-0.5 |
| 1000 | 840 | 1.1-1.3 |
| 1000 | 700 | 2.3-2.7 |

10. Pin projection distance = 16.65 ± 0.05 mm.

11. Start-of-delivery sensor setting

Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3) $^\circ$ camshaft angle after cylinder 1.

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4 M 55 C 320 RS 152-3
RSF 375/2300 M 55-4
Komb.Nr. 0 400 074 936
1- 3- 4 - 2
0-90-180-270

supersedes
company: Daimler-Benz
engine: OM 601
53 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,00-2,10$ mm (from BDC)
 $(1,95-2,15)$

RW = 20,0-22,0 mm

Note: Before starting testing, observe the important instructions on the reverse.

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (compensating valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 11,1+0,1 | 3,1-3,2 | 0,25(0,3) | | | |
| 375 | 5,4-5,6 | 0,5-0,6 | 0,1 (0,15) | | | |
| 1800 | | | 0,25(0,3) | | | |
| 2200 | | | 0,25(0,3) | | | |

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

| Lower rated speed | | | Upper rated speed | | | Variations in control rod travel | | |
|---------------------------------------|--------------------------|-----------------------------|---------------------------------------|--------------------------|-----------------------------|----------------------------------|-----------------------------|--------------------------|
| Degree of deflection of control lever | Control rod travel mm | Rotational speed rev/min | Degree of deflection of control lever | Control rod travel mm | Rotational speed rev/min | | Rotational speed rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 13-17 | ① min. 11,5 | 250 | 50 | ⑦ 10,3-10,5 | 2200 | | ⑫ 100 | min. 20,1 |
| | ② 5,4-5,6 | 375 | | ⑧ 7,8-8,2 | 2500 | | ⑬ 1800 | 10,8-11,0 |
| | ③ 4,4-4,6 | 400 ** | | ⑨ - | | | ⑭ 2200 | 10,3-10,5 |
| | ④ 1,5 | 630-730 | | ⑩ 0-1,0 | 2900 | | | |
| | ⑤ | | | ⑪ | | | ⑥ | Switching point |

C. Settings for Fuel Injection Pump with Governor Mounted

| Full-load delivery ⑰ | | Full-load speed regulation ⑧a | Variations in fuel delivery ⑰ | | Starting fuel delivery idle | | Difference |
|-----------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-----------------------------|-------------------------------|-------------------------------|
| Test oil temp. 40°C (104°F) | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | cm ³ /1000 strokes |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2200 | 33,0-35,0 (32,0-36,0) | 2500 * RW = 7,8-8,2 | 1800 | 34,0-35,5 (33,0-36,5) | 100 | min. 55 | 6,0 |
| | | | | | 375 | 5,0-6,0 (4,5-9,0) | 1,0 |
| | | | 1000 | 31,0-32,0 (30,0-33,0) | 2500 | 22,0-26,0 (21,0-27,0) | (1,5) |
| | | | | | | | 2,5 see point 8a |
| | | | | | | | (3,0) point 8a |

Checking values in brackets

* ca. 2,4 * 1 mm less control rod travel than in Column 2

1. ** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4.3-4.7 mm).
2. Setting the idle control lever position:
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. Checking the idle speed auxiliary spring shut-off
Control lever position 50° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm.
Control lever position 48.5° ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. Checking the pneumatic shut-off box
Control lever on idle stop.
At $n = 375$ rpm and $p_u = 450$ mbar, the control rod must travel rapidly to control rod position = 0 mm.
5. Overflow valve 1 469 990 351,
6. Port closing difference between largest/smallest value max. 1° camshaft angle.
7. Setting the idle speed control rod travel on the pneumatic idle boost box
When doing this, release the lock nut.
8. Checking the pneumatic idle boost:
With 0.4 bar vacuum, $n = 425$ rpm, control rod travel = (7.0 - 8.6 mm)
Delivery = (11.0 - 19.0 cm³/1000 strokes).
9. Apply 0.8 bar vacuum to the pneumatic idle boost box via a three-way valve and a pressure gauge. Using the three-way valve, disconnect the vacuum supply from the pneumatic idle boost box and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. Start-of-delivery sensor setting
Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3°) camshaft angle after cylinder 1.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 8,8g

1. Edition

En

Testoil-ISO 4113

PES 8 MW 100/720 RS 1110

RQV 500-1200 MW 29

0 403 448 120

supersedes -

company: Perkins

engine: TV 8.640 GR

185 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) 9 - 12 mm RW

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1180 | 13,8+0,1 | 9,9 - 10,1 | 0,35(0,6) | | | |
| 500 | 7,3-7,4 | 0,95- 1,35 | 0,35(0,55) | | | |
| 800 | 13,8+0,1 | | 0,5 (0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1200 1400 | 15,2-17,8 0,1-1,0 | - | - | - | ca.15 | 500 100 | 7,3-7,4 min.100 | | |
| ca.64 | 12,8 4,0 | 1220-1225 1270-1285 | | | | | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics | | Starting fuel delivery idle switching point | | Torque-control | |
|---|------------------------------------|--|-------------------------------|------------------------------------|---|--|----------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1180 | 99,0-101,0 (97,0-103,0) | | 800 | 93,0-97,0 (91,0-99,0) | 100 | 19,0-21,0 mm RW 90,0-100,0 (87,0-103,0) | | |
| | | | | | 500 | 9,5-13,5 (7,0-16,0) | | |
| | | | | | 100-400 | (80-420) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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Port closing and TDC markings

| | |
|-------------|--|
| Comb. - No. | ° camshaft between port-closing and TDC |
| ... 120 | at control-rod travel 10,5 mm |
| | 15° |

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 285/Z RQ 250/1100 PA 196 R
Komb.-Nr. 0 401 846 326/Z

supersedes _
company: DAF
engine: DRS 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|--|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 11,4+0,1 | 21,6-22,0 | 0,5(0,90) | | | |
| 600 | 9,8-9,9 | 13,4-13,8 | - | | | |
| 250 | 6,2-6,4 | 1,1-1,5 | 0,8(0,95) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | | | | |
|---------------------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------|-----------------------|-----------------------|---------------|-----------------------|---------------------|-----------------------|---------|-----------------------|---------|-----------------------|
| ① | | Setting point | | Test specifications | | ④ | | Setting point | | Test specifications | | ⑤ | | ③ | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | |
| 700 | 15,6-16,4 | 700 | 16,0 | 10,4 | 1135-1150 | 250 | 6,3 | 100 | min.7,4 | - | - | | | | |
| | | | | 4,0 | 1200-1230 | | | 250 | 6,2-6,4 | | | | | | |
| | | | | 1350 | max. 1,0 | | | 440-480 | =2,0 | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1135-1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|---|------------------|-------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|
| ② | | ③a | ③b | | ⑥ | |
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| LDA 1100 | 0,7 bar 216,0-220,0 (213,0-223,0) | - | LDA 600 | 0 bar 133,5-137,5 (129,5-141,5) | 100 | 320,0-360,0 RW = 19,5- 21,0 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 g 2

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 285/Z + RQ..PA 196 R | 0,70 | 0,37 0 | 11,4-11,5 11,0-11,1 9,8-9,9 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 g 1

1. Edition

En

PE 6 P 120 A 320 RS 285/Z
Komb.-Nr. 0 401 876 185/Z

RSV 250-1100 P 5/390 R

supersedes...

company: DAF

engine: DKS 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
($2,75-2,95$) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 11,4+0,1 | 21,6-22,0 | 0,5(0,9) | | | |
| 250 | 6,2-6,4 | 1,1-1,5 | 0,8(0,95) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm/rev/min | | | | Control lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 24 | 250 | 5,8 | 400 | 11,6-11,7 |
| | x = | | | | | | 250 | 6,2-6,4 | 300 | 11,8-12,3 |
| | | | | | | | 360-420 | = 2,0 | | |
| ca. 54 | 10,4 | 1140-1150 | | | | | | | | |
| 2a | 4,0 | 1210-1240 | | | | | | | | |
| | 1380 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests^o

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 Idle stop | |
|-----------------------------|---|-----------------------------|------------|---------------------------------------|-------------------------------|--------------------------------------|-------------------------------|-------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| LDA 1100 | 0,7 bar 216,0-220,0 (213,0-223,0) | 1140-1150* | LDA 600 | 0 bar 133,5-137,5 (129,5-141,5) | 100 | 320,0-360,0 RW = 19,5- 21,0 mm | 250 | 6,3 | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.85

B13

BA3

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P.. RS 285/Z + RSV..P 5/390 R | 0,70 | 0,37 0 | 11,4-11,5 11,0-11,4 9,8-9,9 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 a 2
1. Edition

En

PES 6 P 110 A 720 RS 361 RSV 400-1100 P2/471
Komb.-Nr. 9 400 231 044

supersedes
company: John Deere
engine: 6466 A

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,75-2,85 (2,70-2,90) mm (from BDC) Port closing mark 13,25° after port closing cylinder 1

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1050 | 11,7+0,1 | 16,0-16,2 | 0,4 (0,75) | | | |
| 400 | 6,3-6,5 | 1,9-2,5 | 0,4 (0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|--------------------------|----------------------------------|--------------------------|---|---|--|---------|--------------------------|------------------|--------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3 - 1,0 | - | - | - | ca. 21 | 400 | 5,6 | 1050 | 11,7+0,1 |
| | | x = 4,5 | | | | | 100 | min. 19,0 | 730 | 11,7+0,1 |
| | | | | | | | 400 | 6,0-6,2 | 650 | 12,3+0,1 |
| | | | | | | | 600-660 | = 2,0 | | |
| | | | | | | | 850 | max. 1,0 | | |
| ca. 44 | 10,7 | 1095-1105 | | | | | | | | |
| 2a | 4,0 | 1185-1215 | | | | | | | | |
| | 1300 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|-----------------------------|--|------------------------------------|----------------------------------|--|--------------------------|-------------------------------|--------------------|-----|
| Test oil temp. 40°C (104°F) | | Note: changed to ... rev/min | Characteristics | | Idle | | Control rod travel | |
| rev/min | cm ³ /1000 strokes | 3 | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1050 | 0,93 bar 160,0-162,0 (157,0-165,0) | 1095-1105 | LDA 650 | 0,93 bar 170,0-174,0 (167,0-177,0) | 100 | 155,0-175,0 = 210 mm RW | 400 | 6,3 |
| | | | LDA 550 | 0 bar 88,0-96,0 (87,0-93,0) | 400 | 19,0-25,0 (17,0-27,0) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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B15

B15

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 a 2 -2-

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 6 P .. RS 361 + RSV .. P 2/471 | 0,53 | 0,27 | 11,1-11,2 9,3 - 9,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

 WPP 001/4 MB 11,8 n
1. Edition

En

 PE 6 P 110 A 720 RS 371
Komb.-Nr. 9 400 087 319

RQV 300-1050 PA 747

 supersedes
company: Daimler-Benz.
OM 355 A
engine: 210 KW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1050 | 10,5+0,1 | 16,1-16,3 | 0,4 (0,75) | | | |
| 300 | 5,9-6,1 | 1,6-2,1 | 0,35(0,45) | | | |

 Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | |
|--|--|---|--|--------------|-------------------------------|--|-----------------------------|-------------------------------|---------------------------|--------------------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max ca. 68 | 1100 10,5 4,0 1300 | 15,2-17,8 1090-110 1060-1090 0 - 1,0 | - | - | - | ca. 14 380-440 | 100 300 530-590 = 2,0 | min. 8,6 5,9-6,1 | 260 450 800 1070 | 1,0-1,4 2,5-2,8 5,4-5,7 8,6 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|--|----------------------------------|-------------------------------------|--|------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5b | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1050 | 161,0-163,0 (159,0-165,0) | 1090-1100* | 500 | 152,0-156,0 (149,0-159,0) | 100 | 144,0-160,0 | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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B17

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 DAF 11,6 k 6

1. Edition

En

PE 6 P 120 A 320 RS 372/Z
Komb.-Nr. 0 401 876 229/Z

RSV 250-1100 P 5/458 R

supersedes
company: DAF
DKS 1160
engine:

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 11,4+0,1 | 21,6-22,0 | 0,5(0,90) | | | |
| 250 | 6,2-6,4 | 1,1-1,5 | 0,8(0,95) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| ① Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | ④ Control-lever deflection in degrees 7 | Lower rated speed | | ③ Torque control | |
|---|----------------------------|------------------------------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 24 | 250 | 5,8 | 400 | 11,6-11,7 |
| | x = | | | | | | 250 | 6,2-6,4 | 300 | 11,8-12,3 |
| ca. 54 | 10,4 | 1140-1150 | | | | | 620-680 | = 2,0 | | |
| ②a | 4,0 | 1265-1295 | | | | | | | | |
| | 1425 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop Test oil temp. 40°C (104°F) | | ⑥ Rotational-speed limit Note: changed to ... rev/min 3 | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ⑤ | ④a Idle stop | |
|--|---|---|----------------------------------|---------------------------------------|-----------------------------|--------------------------------------|-----|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | | rev/min 8 | Control rod travel mm 9 |
| LDA 1100 | 0,7 bar 216,0-220,0 (213,0-223,0) | 1140-1150* | LDA 600 | 0 bar 133,5-137,5 (129,5-141,5) | 100 | 320,0-360,0 RW = 19,5- 21,0 mm | 250 | 6.3 | |

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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B18

3A8

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 372/Z + RSV..P 5/458 R | 0,70 | 0,37 0 | 11,4-11,5 11,0-11,1 9,8-9,9 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 372/Z RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 396/Z

supersedes -
company: DAF
engine: DKS 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 11,4+0,1 | 21,6 - 22,0 | 0,5(0,90) | | | |
| 600 | 9,8-9,9 | 13,4 - 13,8 | - | | | |
| 250 | 6,2-6,4 | 1,1 - 1,5 | 0,8(0,95) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | | Full-load speed regulation Setting point rev/min 3 | | | Test specifications Control rod travel mm 4 | | | rev/min 6 | | | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | | Test specifications rev/min 9 | | Control rod travel mm 10 | | Torque control rev/min 11 | | Control rod travel mm 12 | |
|---|-----------|-------------------------------|------|---|-----|------|--|-----------|----------|--------------|-----|-----|--|-----|-------------------------------|-----|-------------------------------------|---|--------------------------------|---|---------------------------------|---|--------------------------------|--|
| 700 | 15,6-16,4 | 700 | 16,0 | 10,4 | 4,0 | 1350 | 1135-1150 | 1200-1230 | max. 1,0 | 250 | 6,3 | 100 | min. 7,4 | 250 | 6,2 - 6,4 | 480 | - 480 = 2,0 | - | - | - | - | - | - | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1135 - 1150 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | | Starting fuel delivery Idle speed rev/min 6 | | Control rod travel cm ³ /1000 strokes/mm 7 | |
|---|---|-------------------------------------|---|----------------------------------|---|---|---|-------------------------------------|--|--|--|---|--|
| LDA 1100 | 0,7 bar 216,0 - 220,0 (213,0 - 223,0) | - | - | LDA 600 | 0 bar 133,5 - 137,5 (129,5 - 141,5) | 100 | 320,0 - 360,0 RW = 19,5 - 21,0 mm | | | | | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 0 8

Test at n = 600 rev/min ^{decreasing} pressure - in bar gauge pressure
_{increasing}

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE6P .. RS 372/Z + RQ .. PA 417 R | 0,70 | 0,37 0 | 11,4 - 11,5 11,0 - 11,1 9,8 - 9,9 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 372-1/Y
Komb.-Nr. 0 401 846 463/Y

RQ 250/1100 PA 417-1

supersedes...

company: DAF

engine: DKA 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 11,1+0,1 | 11,5-11,7 | 0,4(0,75) | | | |
| 250 | 6,6-6,8 | 0,7-1,1 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | Full-load speed regulation Setting point rev/min 3 | | | | Control rod travel mm 4 | Test specifications rev/min 6 | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | Test specifications rev/min 10 | Torque control rev/min 11 | | Control rod travel mm 12 |
|---|-----------|-------------------------------|---|---------------------|------------------------------------|-----|-------------------------------|-------------------------------------|--|---|-------------------------------|--------------------------------------|---------------------------------|--|--------------------------------|
| 700 | 15,6-16,4 | 700 | 16,0 | 10,1 4,0 1350 | 1150-1165 1220-1250 max. 1,0 | 250 | 6,7 | 100 250 460-500 | min.7,8 6,6-6,8 = 2,0 | - | - | - | - | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1150-1165 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | Control rod stop rev/min 3 | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | Starting fuel delivery Idle speed rev/min 6 | | Control rod travel mm 7 |
|---|------------------------------|-------------------------------------|----------------------------------|---|---|-------------------------------------|--|--|-------------------------------|
| 850 | 114,5-116,5 (111,5-119,5) | - | - | - | - | 100 | 245,0-285,0 RW = 19,5- 21,0 mm | | |

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 372-1/2 RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 464/Z

supersedes -
company: DAF
engine: DKS 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 850 | 11,4-0,1 | 20,4 - 20,8 | 0,5(0,90) | | | |
| 600 | 9,8-9,9 | 13,4 - 13,8 | - | | | |
| 250 | 6,2-6,4 | 1,1 - 1,5 | 0,8(0,95) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | |
|---------------------------------|-----------|----------------------------|--------------------------|--------------------------|------------------------------------|-----------------------|--------------------------|--------------------------|------------------------------------|----------------|--------------------------|----|
| Control rod travel mm | ① | Setting point | Test specifications | | | Setting point | Test specifications | | | ③ | Control rod travel mm | |
| rev/min | 2 | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | 11 | 12 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| 700 | 15,6-16,4 | 700 | 16,0 | 10,4 4,0 1350 | 1135-1150 1200-1230 max. 1,0 | 250 | 6,3 | 100 250 440 | min. 7,4 6,2 - 6,4 480 = 2,0 | - | - | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1135 - 1150 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|---|------------------|-------------------------------|---|--------------------------------------|---|
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| LDA 850 | 0,7 bar 204,0 - 208,0 (201,0 - 211,0) | - | LDA 600 | 0 bar 133,5 - 137,5 (129,5 - 141,5) | 100 | 320,0 - 360,0 RW = 19,5 - 21,0 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 o 9

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE6P .. RS 372-1/Z + RQ .. PA 417 R | 0,70 | 0,37 0 | 11,4 - 11,5 11,0 - 11,1 9,8 - 9,9 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 110 A 320 RS 372-1/Z RQ 250/1100 PA 417-1
Komb.-Nr. 0 401 846 463/Z

supersedes
company DAF
engine: DKT 1160
206 kW

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC bei RW = 9,0-12,0 mm)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,8+0,1 | 15,3-15,6 | 0,4(0,75) | | | |
| 250 | 7,0-7,2 | 1,0-1,4 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ④ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|--------------|--|-------------------------------|--------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 700 | 15,6-16,4 | 700 | 6,0 | 11,8 | 1145-1160 | 250 | 7,1 | 100 | min. 8,0 | - | - |
| | | | | 4,0 | 1230-1260 | | | 250 | 7,0-7,2 | | |
| | | | | 1400 | max. 1,0 | | | 470-510 | = 2,0 | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min 1 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery idle speed ⑥ | |
|---|-------------------------------------|---------------------|----------------------------------|-------------------------------------|--|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA | 0,7 bar | - | LDA | 0 bar | 100 | 245,0-285,0 |
| 850 | 152,5-155,5 (150,0-158,0) | | 600 | 127,5-130,5 (124,0-134,0) | | RW = 19,5 - 21,0 mm |

Checking values in brackets

5.85

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 15

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 372-1/Z +RQ.. PA 417-1 | 0,70 | 0,36 0 | 12,8-12,9 12,5-12,6 11,4-11,5 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 7

1. Edition

En

PE 6 P 120 A 320 RS 372-1/Z
Komb.-Nr. 0 401 876 255/Z

RSV 250-1100 P 5/458 R

supersedes
company DAF
engine DKS 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 850 | 11,4+0,1 | 20,4-20,8 | 0,5(0,90) | | | |
| 250 | 6,2-6,4 | 1,1-1,5 | 0,8(0,95) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | Lower rated speed | | 3 Torque control | |
|--|--------------------|------------|--------------------------|---|---|---------------------------------------|-------------------|-----------------------|------------------|-----------------------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 24 | 250 | 5,8 | 400 | 11,6-11,7 |
| | X = | | | | | | 250 | 6,2-6,4 | 300 | 11,8-12,3 |
| ca. 54 | 10,4 | 1140-1150 | | | | | 620-680 | = 2,0 | | |
| 2a | 4,0 | 1265-1295 | | | | | | | | |
| | 1380 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|---|--|----------------------------------|---------------------------------------|-----------------------------|--------------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 850 | 0,7 bar 204,0-208,0 (201,0-211,0) | 1140-1150* | LDA 600 | 0 bar 133,5-137,5 (129,5-141,5) | 100 | 320,0-360,0 RW = 19,5- 21,0 mm | 250 | 6,3 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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C3

E3

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel - diminution difference mm (1) |
|---|---------------------------------|-------------------------------------|---|
| PE 6 P..RS 372-1/2 + RSV..P 5/458 R | 0,70 | 0,37 0 | 11,4-11,5 11,0-11,1 9,8-9,9 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

Testoil-ISO 4113

PE 6 P 100 A 320 RS 384/Z RQ 250/1000 PA 442 R
Komb.-Nr. 0 401 846 410/Z

supersedes
company DAF
engine: DKDL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,20-3,30 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 600 | 11,0+0,1 | 9,8-10,0 | 0,3(0,55) | | | |
| 250 | 7,1-7,3 | 0,9-1,3 | 0,3(0,60) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | | ① | | Full-load speed regulation Setting point rev/min 3 | | Control rod travel mm 4 | | Test specifications rev/min 6 | | ④ | | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | | Test specifications rev/min 9 | | Control rod travel mm 10 | | ⑤ | | Torque control rev/min 11 | | Control rod travel mm 12 | | ③ | | |
|---|-----------|-------------------------------|------|------|-----------|---|-----|-------------------------------|---------|-------------------------------------|-----------|---|--|--|--|-------------------------------|--|-------------------------------------|--|--------------------------------|--|---|--|---------------------------------|--|--------------------------------|--|---|--|--|
| 550 | 15,6-16,4 | 550 | 16,0 | 9,1 | 1055-1070 | 250 | 7,2 | 100 | min.8,7 | 600 | 11,0-11,1 | | | | | | | | | | | | | | | | | | | |
| | | | | 4,0 | 1080-1110 | | | 250 | 7,1-7,3 | 710 | 10,7-10,9 | | | | | | | | | | | | | | | | | | | |
| | | | | 1200 | max. 1,0 | | | 330-370=2,0 | | 805 | 10,2-10,5 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 1000 | 10,1-10,3 | | | | | | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = 0,40 mm Speed regulation: At 1055-1070 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | | ② | | Control rod stop rev/min 3 | | 3a | | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | | 3b | | Starting fuel delivery Idle speed rev/min 6 | | cm ³ /1000 strokes/mm 7 | | Control rod travel mm 8 | | ⑥ | |
|---|----------------------------|-------------------------------------|--|---|--|----------------------------------|--------------------------|-----|----------------------------------|---|--|-------------------------------------|--|----|--|--|--|---------------------------------------|--|-------------------------------|--|---|--|
| 600 | 98,0-100,0 (96,0-102,0) | 600 | | | | 1000 | 93,0-97,0 (91,0-99,0) | 100 | 170,0-210,0 RW = 19,5-21,0 mm | | | | | | | | | | | | | | |

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384/Z
Komb.-Nr. 0 401 846 412/Z

RQ 250/1100 PA 450/2 DR

supersedes...

company: DAF

engine: DKL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,20-3,30$
 $(3,15-3,35)$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 600 | 11,9+0,1 | 11,4-11,7 | 0,3(0,60) | | | |
| 1050 | 11,1+0,1 | 10,4-10,9 | - | | | |
| 225 | 7,3-7,5 | 0,8-1,2 | 0,3(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | Full-load speed regulation Setting point rev/min 3 | | | Control rod travel mm 4 | Test specifications rev/min 6 | Idle speed regulation Setting point rev/min 7 | | | Control rod travel mm 8 | Test specifications rev/min 9 | Control rod travel mm 10 | Torque control rev/min 11 | | Control rod travel mm 12 | | |
|---|-----------|-------------------------------|---|------|------|---|-------------------------------------|--|-----|---------|-------------------------------|-------------------------------------|--------------------------------|---------------------------------|-----|--------------------------------|------|-----------|
| 550 | 15,6-16,4 | | 550 | 16,0 | 10,1 | 1145-1160 4,0 1175-1205 1300 max. 1,0 | 225 | 7,4 | 100 | min.7,5 | 600 | 11,9-12,0 | 825 | 11,7-11,9 | 915 | 11,1-11,4 | 1050 | 11,1-11,2 |

Torque-control travel on flyweight assembly dimension a = $0,45$ mm Speed regulation: At $1145-1160 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | Control rod stop rev/min 3 | Fuel delivery characteristics rev/min 4 | cm ³ /-1000 strokes 5 | Starting fuel delivery Idle speed rev/min 6 | cm ³ /1000 strokes/mm 7 | Control rod travel mm 8 |
|---|------------------------------|-------------------------------------|----------------------------------|---|-------------------------------------|--|---------------------------------------|-------------------------------|
| 600 | 114,0-117,0 (112,5-118,5) | | 600 | 1050 | 104,0-109,0 (102,5-110,5) | 100 | 195,0-235,0 RW = 19,5- 21,0 mm | |

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 14

1. Edition

En

PE 6 P 110 A 320 RS 385-1/M
Komb.-Nr. 0 401 876 256/M

RSV 250-900 P 7/479

supersedes
company DAF
engine DKS 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
($2,75-2,95$) mm (from BDC) bei RW = 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 750 | 13,6+0,1 | 19,2-19,6 | 0,4(0,75) | | | |
| 250 | 6,8-7,0 | 2,5-3,3 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 700 | 0,3-1,0 | - | - | - | ca. 17 | 250 | 6,9 | - | - |
| | x = | | | | | | 250 | 6,8-7,0 | | |
| ca. 46 | 12,6 | 915-920 | | | | | 260-320 | = 2,0 | | |
| 2a | 4,0 | 935-940 | | | | | | | | |
| | 1100 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests ** max. speed difference between control-rod travel 12,6 and 4,0 mm = 20 - 30 min/1.

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|-----------------------------|------------------------------------|--------------------------|--------------|------------------------------------|--------------|------------------------------------|--------------|-------------------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | Idle | | | |
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 | |
| 750 | 191,5-195,5 (189,5-197,5) | 915-920* | - | - | 100 | - | | | |
| | | | | | | RW = 19,5-21,0 mm | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.85

C7

C7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 15

1. Edition

En

PE 6 P 110 A 320 RS 385-1/N
Komb.-Nr. 0 401 876 256/N

RSV 250-750 P 7/479

supersedes
company: DAF
DKS 1160
engine:

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC bei RW = 9,0-12,0 mm)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 750 | 13,6+0,1 | 19,2-19,6 | 0,4(0,75) | | | |
| 250 | 6,8-7,0 | 2,5-3,3 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 700 | 0,3-1,0 | - | - | - | ca. 17 | 250 | 6,9 | - | - |
| | x = | | | | | | 250 | 6,8-7,0 | | |
| ca. 39 | 12,6 | 790-795 | | | | | 260-320 | = 2,0 | | |
| 2a | 4,0** | 810-825 | | | | | | | | |
| | 950 | 0,3-1,7 | | | | | | | | |

** max. speed difference between control-rod travel 12,6 and 4,0 mm = 20 - 30 min/1.

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|-----------------------|--------------------------|-------------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | Note: changed to ...) | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 750 | 790-795* | - | - | 100 | RW = 19,5-21,0 mm | | | | |
| | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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C8

C8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 16

1. Edition

En

PE 6 P 110 A 320 RS 385-1/P
Komb.-Nr. 0 401 876 256/P

RSV 250-950 P 7/479

supersedes
DAF
company: DKS 1160
engine

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC bei RW = 9,0-12,0 mm)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 925 | 13,3+0,2 | 18,9-19,3 | 0,4(0,75) | | | |
| 250 | 6,8-7,0 | 2,5-3,3 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|--------------------|-----------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| Loose | 700 | 0,3-1,0 | - | - | - | ca. 17 | 250 | 6,9 | - | - |
| ca. 49 | 12,3 | 965-970 | | | | | 250 | 5,8-7,0 | | |
| (2a) | 4,0** | 985-1000 | | | | | 260-320 | = 2,0 | | |
| | 1100 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests
** max. speed difference between control rod travel 12.3 and 4,0 mm = 20 - 30 min/i.

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery idle 5 | | 4a Idle stop | |
|--|------------------------------------|---|----------------------------------|------------------------------------|-------------------------------|------------------------------------|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 925 | 188,5-192,5 (186,5-194,5) | 985-1000* | - | - | 100 | RW = 19,5- 21,0 mm | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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C9

C9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 17

1. Edition

En

PE 6 P 110 A 320 RS 385-1/R
Komb.-Nr. 0 401 876 256/R

RSV 250-900 P 7/479

supersedes
company DAF
engine DK 1160

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$ mm (from BDC)
 $(2,75-2,95)$

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 750 | 11,0-11,2 | 13,9-14,2 | 0,4(0,75) | | | |
| 250 | 6,8-7,2 | 2,5-3,3 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|--------------------|-----------------|--------------------------|---|---|--|-------------------|-------------------------------|------------------|--------------------------------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 700 | 0,3-1,0 | - | - | - | ca. 17 | 250 | 6,9 | - | - |
| ca. 52 2a | X = | | | | | | 250 260-320 | 6,8-7,0 = 2,0 | | |
| | 10,0 | 915-920 | | | | | | | | |
| | 4,0** | 935-950 | | | | | | | | |
| | 1100 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests
** max. speed difference between control-rod travel 10.0 and 4,0 mm = 20 - 30 min/1.

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery Idle 5 | | 4a Idle stop | |
|--|------------------------------------|---|----------------------------------|------------------------------------|-------------------------------|------------------------------------|--------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 750 | 138,5-141,5 (136,0-144,0) | 915-920* | - | - | 100 | RW = 19,5- 21,0 mm | - | - |

Checking values in brackets

* 1 mm less control rod travel than 01 2

5.85

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C10

C10

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 18

1. Edition

En

PE 6 P 110 A 320 RS 385-1/S RSV 250-750 P 7/479
Komb.-Nr. 0 401 876 256/S

supersedes -
company: DAF-
engine OK 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC)

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 750 | 11,0-11,2 | 13,9-14,2 | 0,4(0,75) | | | |
| 250 | 6,8-7,0 | 2,5-3,3 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|----------------------|-------------------------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 700 | 0,3-1,0 | - | - | - | ca. 17 | 250 | 6,9 | - | - |
| | x = | | | | | | 250 260-320 | 6,8-7,0 = 2,0 | | |
| ca. 44 2a | 10,0 4,0** 950 | 790-795 810-825 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests
** max. speed difference between control-rod travel 10.0 and 4,0 mm = 20 - 30 min/1.

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery idle 5 | | 4a Idle stop | |
|--|------------------------------------|--|----------------------------------|------------------------------------|-------------------------------|------------------------------------|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 750 | 138,5-141,5 (136,0-144,0) | 790-795* | - | - | 100 | RW = 19,5- 21,0 mm | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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C11

CA1

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 407/Z
Komb.-Nr. 0 401 846 405/Z

RQ 300/1100 PA 428/2 R

supersedes -
company: DAF
engine: DKTL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC) bei RW = 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,3+0,1 | 14,1-14,4 | 0,4 (0,75) | | | |
| 600 | 12,0+0,1 | 13,7-14,0 | - | | | |
| 300 | 7,6-7,8 | 2,3-2,7 | 0,4 (0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation ④ | | | | Idle speed regulation ⑤ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|---|-------------------------------|-------------------------------|-------------------------------|------------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Control rod travel mm 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 600 | 15,6-16,4 | 600 | 16,0 | 11,3 | 1145-1160 4,0 1200-1230 1350 max. 1,0 | 300 | 7,7 | 100 | min. 9,1 7,6-7,8 375-415=2,0 | - | - |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|---|---------------------|----------------------------------|---------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/ mm 7 |
| LDA 850 | 0,7 bar 140,5-143,5 (138,0-146,0) | - | LDA 600 | 0 bar 136,5-139,5 (133,0-143,0) | 100 | 245,0-285,0 RW = 19,5- 21 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n.7

Test at n = 600 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|---|---------------------------------|-------------------------------------|---|
| PE 6 P..RS 407/Z + RQ..PA 428/2 R | 0,70 | 0,30 0 | 12,3-12,4 12,1-12,2 12,0-12,1 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 407-1/X
Komb.-Nr. 0 401 846 469/X

RQ 300/1100 PA 428/2 R

supersedes.
company: DAF
engine: DKTL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDQ) $\text{Bei RW} = 9,0-12,0$ mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,3+0,1 | 14,1-14,4 | 0,4(0,75) | | | |
| 600 | 10,5+0,1 | 10,2-10,5 | - | | | |
| 300 | 7,6-7,8 | 2,3-2,7 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | ① Control rod travel mm 2 | | Full-load speed regulation Setting point rev/min 3 | | ④ Test specifications Control rod travel mm 5 rev/min 6 | | Idle speed regulation Setting point rev/min 7 Control rod travel mm 8 | | ⑤ Test specifications rev/min 9 Control rod travel mm 10 | | Torque control rev/min 11 Control rod travel mm 12 | | ③ | |
|---|-----------|---------------------------------|------|---|-----------------------|--|-----|---|---------|---|---|---|---|---|---|
| 600 | 15,6-16,4 | 600 | 16,0 | 11,3 | 1145-1160 | 300 | 6,4 | 300 | 6,2-6,5 | - | - | - | - | - | - |
| | | | | 4,0 1350 | 1200-1230 max. 1,0 | | | 100 | min.10 | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1145-1160 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /-1000 strokes 2 | | ② Control rod stop rev/min 3 | | ③a Fuel delivery characteristics rev/min 4 cm ³ /-1000 strokes 5 | | ③b Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7 | | ⑥ Control rod travel | |
|--|---|------------------------------------|---|---|--|--|--------------------------------------|----------------------|--|
| LDA 850 | 0,7 bar 140,5-143,5 (138,0-146,0) | - | - | LDA 600 | 0,7 bar 101,5-104,5 (98,0-108,0) | 100 | 245,0-285,0 RW = 19,5- 21,0 mm | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n 8

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference mm (1) |
|---|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | |
| PE 6 P..RS 407-1/X + RQ..PA 428/2 R | 0,70 | 0,13 0,09 0 | 12,3-12,4 11,8-11,9 10,9-11,2 10,5-10,6 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 407-1/Y
Komb.-Nr. 0 401 846 469/Y

RQ 275/1100 PA 428/2 R

supersedes-
company: DAF
engine: DKVL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC bei RW = 9,0-12,0 mm)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,8+0,1 | 15,3-15,6 | 0,4(0,75) | | | |
| 600 | 12,0+0,1 | 13,7-14,0 | - | | | |
| 275 | 7,0-7,2 | 1,0-1,4 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------------|----------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Test specifications rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 11,8 4,0 1350 | 1135-1150 1200-1230 max. 1,0 | 275 | 7,1 | 100 275 350-390=2,0 | min.7,0 7,0-7,2 | - | - |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1135-1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|---|------------------|-------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 850 | 0,7 bar 152,5-155,5 (150,0-158,0) | - | LDA 600 | 0 bar 136,5-139,5 (132,0-142,0) | 100 | 245,0-285,0 RW = 19,5- 21,0 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n 5

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|--|---------------------------------|-------------------------------------|---|
| PE 6 P..RS407-1/Y + RQ .. PA 428/2 R | 0,70 | 0,255 0 | 12,8-12,9 12,5-12,6 12,0-12,1 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 407-1/2
Komb.-Nr. 0 401 846 469/Z

RQ 300/1100 PA 428/2 R

supersedes -

company: DAF

engine: DKTL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDQ) bei RW = 9,0-12,0 mm

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,3+0,1 | 14,0-14,4 | 0,4 (0,75) | | | |
| 600 | 12,0+0,1 | 13,7-14,0 | - | | | |
| 300 | 7,6-7,8 | 2,3-2,7 | 0,4 (0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | | ① | | Full-load speed regulation Setting point rev/min 3 | | Control rod travel mm 4 | | Test specifications rev/min 6 | | ④ | | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | | Test specifications rev/min 10 | | ⑤ | | Torque control rev/min 11 | | Control rod travel mm 12 | | ③ | |
|---|-----------|-------------------------------|------|------|-----------|---|-----|-------------------------------|----------|-------------------------------------|---|---|---|--|---|-------------------------------|---|--------------------------------------|---|---|---|---------------------------------|---|--------------------------------|---|---|---|
| 600 | 15,6-16,4 | 600 | 16,0 | 11,3 | 1145-1160 | 300 | 7,7 | 100 | min. 9,1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | 4,0 | 1200-1230 | | | 300 | 7,6-7,8 | | | | | | | | | | | | | | | | | | |
| | | | | 1350 | max. 1,0 | | | 375-415 | =2,0 | | | | | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | | ② | | Control rod stop rev/min 3 | | 3a | | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | | 3b | | Starting fuel delivery Idle speed rev/min 6 | | cm ³ /1000 strokes/mm 7 | | ⑥ | | |
|---|---|-------------------------------------|---|---|---|----------------------------------|---------------------------------------|-----|--------------------------------------|---|--|-------------------------------------|--|----|--|--|--|---------------------------------------|--|---|--|--|
| LDA 850 | 0,7 bar 140,0-143,5 (137,5-145,5) | - | - | - | - | LDA 600 | 0 bar 136,5-139,5 (132,0-144,0) | 100 | 245,0-285,0 RW = 19,5- 21,0 mm | | | | | | | | | | | | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n 6

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 407-1/Z + RQ..PA 428/2 R | 0,70 | 0,30 0 | 12,3-12,4 12,1-12,2 12,0-12,1 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 g 1

1. Edition

En

PES 6 P 110 A 720 RS 3083-1

RSV 400-1100 P 2/489

supersedes:
company: John Deere
6466 A
engine: 161 kW

Komb.-Nr. 9 400 231 084

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,45-3,55$
($3,40-3,60$) mm (from BDC)

Port closing mark cyl. 1 : 13° after port closing.

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 10,7+0,1 | 13,8-14,0 | 0,4(0,75) | | | |
| 400 | 5,4-5,6 | 0,8-1,2 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm/rev/min 3 | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|-------------------------------|---------------------------------------|--------------------------|---|---|--|-------------------|-------------------------------|------------------|--------------------------------|
| | | | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 24 | 400 | 5,0 | 1100 | 10,7-10,8 |
| | x = | | | | | | 400 | 5,4-5,6 | 700 | 11,9-12,2 |
| ca. 49 | 9,7 | 1155-1165 | | | | | 600-650 = 2,0 | | | |
| 2a | 4,0 | 1200-1230 | | | | | | | | |
| | 1300 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit. Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|---|--|----------------------------------|---|-----------------------------|------------------------------------|--------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1100 | 0,9 bar 137,5-139,5 (134,5-142,5) | 1155-1165* | LDA 700 | 0,9 bar 154,0-160,0 (151,0-163,0) | 100 | 150,0-170,0 =20,0-21,0 mm RW | - | - |
| | | | LDA 500 | 0 bar 103,0-109,0 (101,0-111,0) | 1200 | 47,0-57,0 | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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4.85

C20

C20

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,4 o 1

1. Edition

En

PES 6 P 120 A 820 LS 3095-10 RSV 350-750 P 1 A 487
Komb.-Nr. 0 402 076 717

supersedes -
company: Daimler-Benz
engine: OM 407 A
169 kW (230 PS)

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) cyl. 6; RW = 9,0-12,0 mm
(3,95-4,15)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 730 | 12,4±0,1 | 19,6 - 19,8 | 0,5 (0,8) | | | |
| 350 | 5,7-5,9 | 3,0 - 4,0 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | Lower rated speed | | 3 Torque control | |
|--|--------------------|------------|--------------------------|---|---|---------------------------------------|-------------------|----|------------------|----|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 700 | 0,3-1,0 | - | - | - | - | | | - | - |
| | X = 2,25 | | | | | | | | | |
| ca. 33 2a | 11,4 | 750-755 | | | | | | | | |
| | 4,0 | 776-789 | | | | | | | | |
| | 900 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|--------------------------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 730 | 196,0-198,0 (193,0-201,0) | 745-760 * | - | - | 100 | 170,0-190,0 (166,0-194,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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C21

CLA

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 721 RS 3101
Komb.-Nr. 0 401 856 705

RQ 300/1200 PA 412-1

supersedes...
company: Steyr
engine: WD 615.67
206 KW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1200 | 10,4+0,1 | 13,1-13,3 | 0,4(0,75) | | | |
| 300 | 5,8-6,0 | 1,2-1,8 | 0,4(0,70) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|----------------------------|-------------------------------|-------------------------------|---------------------------------|-----------------------|-------------------------------|---------------------|--------------------------------|----------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point | | Test specifications | | Setting point | | Test specifications | | rev/min 11 | Control rod travel mm 12 |
| | | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | | |
| 600 | 15,6-16,4 | 600 | 16,0 | 9,4 4,0 1400 | 1225-1240 1300-1330 0-1,0 | 300 | 5,9 | 100 300 400 | man. 7,3 5,8-6,0 440=2,0 | 1200 700 | 10,4-10,5 11,5-11,6 |

Torque-control travel on flyweight assembly dimension a = $0,35$ mm. Speed regulation: At $1225-1240 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|---|------------------|-------------------------------|--|--------------------------------------|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 1200 | 0,9 bar 131,0-133,0 (128,0-136,0) | - | LDA 700 LDA 700 | 0,9 bar 150,0-154,0 (147,0-157,0) 0 bar 120,0-122,0 (117,0-125,0) | 100 | 250,0-280,0 (246,0-284,0) |

Checking values in brackets

05.85

D. Adjustment Test for Manifold Pressure Compensator

STE 9,7 b 3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-----------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 3101 + RQ..PA 412-1 | 0,90 | 0 | 11,5-11,6 |
| | | 0,53 | 9,9-10,0 |
| | | 0,44 | 11,2-11,3 |
| | | | 10,2-10,4 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 31,8 c

1. Edition

En

PE 12 P 120 A 120 RS 7106 RQV 350-900 PA 730

supersedes -

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

company: Baudouin

0-45-60-105-120-165-180-225-240-285-300-345° ± 0,5° (± 0,75°)

engine: V 12 P 15-2

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,6-3,7}
(3,55-3,75) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 900 | 12,0+0,1 | 33,9-34,1 | 0,5(0,9) | | | |
| 350 | 4,5-4,7 | 1,7-2,3 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 940 | 15,2-17,8 | - | - | - | ca. 8 | 350 | 4,6 | 300 | 0,7-1,0 |
| ca. 48 | 11,0 4,0 1150 | 940-950 1000-1030 0-1,0 | | | | | 100 | min.6,1 | 500 | 3,1-3,8 |
| | | | | | | 350-440 | | | 800 | 5,5-6,9 |
| | | | | | | | | | 900 | 8,0 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|------------------------------------|--|--|------------------------------------|---|------------------------------------|--------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 900 | 339,0-341,0 (336,0-344,0) | 940-950* | - | - | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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C24

C24

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 STE 9,7 b 2

1. Edition

En

PE 6 P 110 A 721 RS 3101

RQV 250-1250 PA 413-1

supersedes

company Steyr

Komb.-Nr. 0 401 856 703

engine: WD 615.67/77
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1200 | 12,0+0,1 | 16,2=16,4 | 0,4(0,75) | | | |
| 250 | 5,8-6,0 | 1,2-1,8 | 0,4(0,70) | | | |

Adjust the fuel delivery from each outlet according to the values in .
Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | |
|--|--|---|--|--------------|-------------------------------|--|----------------------|-------------------------------|----------------------------|--------------------------------------|
| Degree of deflection of control lever mm 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min ②a | Degree of deflection of control lever mm 4 | rev/min 5 | Control rod travel mm ④ | Degree of deflection of control lever mm 7 | rev/min 8 | Control rod travel mm ③ | rev/min 10 | mm 11 |
| max. | 1290 | 15,2-17,8 | - | - | - | ca. 11 | 100 | min. 7,3 | 250 | 0,9-1,0 |
| ca. 47 | 11,0 4,0 1500 | 1290-1300 1365-1395 0-1,0 | | | | | 250 340-400 = 2,0 | 5,8-6,0 | 380 550 650 1290 | 1,7-2,2 3,5-4,2 4,4-4,9 8,5 |

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics high idle speed ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel Control rod travel mm ⑤ | |
|--|---|--|--|---|--|------------------------------------|--|--|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | mm 9 |
| LDA 1200 | 0,7 bar 162,0-164,0 (159,0-167,0) | 1290-1300* | LDA 700 | 0,7 bar 165,0-169,0 (163,0-171,0) | 100 | 240,0-270,0 (236,0-274,0) | 1200 500 880 1060 | 12,0+0,1 12,5+0,1 12,3+0,2 12,0+0,3 |
| | | | LDA 700 | 0 bar 120,0-122,0 (117,0-125,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

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D1

21

D. Adjustment Test for Manifold Pressure Compensator

STE 9,7 b 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|------------------------------------|---------------------------------|-------------------------------------|---|
| PE 6 P..RS 3101 + RQV..PA 413-1 | 0,70 | 0 0,53 0,38 | 12,0-12,1 9,8-9,9 11,5-11,6 10,2-10,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 110 A 720 RS 3104 RQ 300/1250 PA 620

supersedes:
company: KHD
engine: BF 6L 413 FRIC
199 KW

Komb.-Nr. 0 402 046 728

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1250 | 14,2+0,1 | 18,1-18,4 | 0,4(0,75) | | | |
| 300 | 6,7-6,9 | 1,3 - 1,9 | 0,4(0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | ① Control rod travel mm 2 | | Full-load speed regulation Setting point rev/min 3 | | | ④ Test specifications Control rod travel mm 4 | | | ⑤ rev/min 6 | | Idle speed regulation Setting point rev/min 7 | | ③ Control rod travel mm 8 | | ⑤ rev/min 9 | | ③ Control rod travel mm 10 | | Torque control rev/min 11 | | ③ Control rod travel mm 12 | |
|---|-----------|---------------------------------|------|---|-----------|-----|--|-----|-------------|----------------|---|--|---|---------------------------------|---|----------------|---|----------------------------------|---|---------------------------------|---|----------------------------------|---|
| 600 | 19,2-20,8 | 600 | 20,0 | 13,2 | 1295-1305 | 300 | 6,8 | 100 | min. 8,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | 4,0 | 1355-1385 | | | 300 | 6,7-6,9 | | | | | | | | | | | | | | |
| | | | | 1450 | 0 - 1,0 | | | 345 | - 385 = 2,0 | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At ^{1295-1305 min⁻¹} 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | ② cm ³ /-1000 strokes 2 | | Control rod stop rev/min 3 | | ③a | | Fuel delivery characteristics rev/min 4 | | ③b | | Starting fuel delivery Idle speed rev/min 6 | | ⑥ cm ³ /1000 strokes/mm 7 | |
|---|---|---------------------------------------|---|----------------------------------|---|------------|---------------------------------------|---|--------------------------------|----|--|--|--|---|--|
| LDA 1250 | 0,9 bar 180,5-183,5 (178,0-186,0) | - | - | - | - | LDA 500 | 0 bar 123,0-125,0 (120,0-128,0) | 100 | 190,0-210,0 (186,0 - 214,0) | | | | | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 r -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|---------------------------------|---------------------------------|-------------------------------------|---|
| PE 6 P..RS 3104 + RQ..PA 620 | 0,90 | 0 | 14,2-14,3 11,9-12,0 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 7
1. Edition

En

PE6P 110 A 320 RS 3108 RQV 250-1100 PA 589-1
Komb.-Nr. 9 400 087 330

supersedes
company: Volvo
engine: THD 100 ED

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0-3,1}{(2,95-3,15)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 700 | 12,1+0,1 | 15,8-16,0 | 0,4(0,8) | | | 2,5 [±] 0,1 |
| 250 | 5,0-5,2 | 3,2-3,6 | 0,3(0,6) | | | (2,2-2,9) |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|----------------|-------------------------------|-----------------------|--------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1175 | 15,2-17,8 | - | - | - | ca. 10 | 100 | min. 6,7 | 250 | 1,2-1,4 |
| ca. 6 5 | 11,1 4,0 | 1160-1170 1225-1255 | | | | | 250 345-405 | 5,0-5,2 = 2,0 | 500 700 | 4,1-4,8 6,4-6,6 |
| | 1350 | 0-1,0 | | | | | | | 1000 1100 | 7,3 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery Idle switching point | | Torque-control travel | |
|---|--|---|--|---------------------------------------|--|-------------------------------------|-----------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 700 | 0,75 bar 158,0-160,0 (155,0-163,0) | 1160-1170* | LDA 700 | 0 bar 105,0-107,0 (102,0-110,0) | 100 | 160,0-190,0 = 20,0-21,0 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

BOSCH

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D5

25

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P .. RS 3108 + RQV .. PA 589-1 | 0,75 | 0 | 12,1 - 12,2 |
| | | 0,60 | 9,3 - 9,4 |
| | | 0,30 | 11,3 - 11,5 |
| | | | 9,6 - 9,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 10,0 g
1. Edition

En

PE 6 P 110 A 320 RS 3109
Komb.-Nr. 0 401 876 737

RSV 650-750 P 4/421

supersedes Volvo-Penta
company: TID 100 kg
engine: 202 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,5-3,6}{(3,45-3,65)}$ mm (from BDC)

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|--|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 700 | 13,8+0,1 | 19,2 - 19,4 | 0,4 (0,75) | | | 2,5 ± 0,1 |
| 650 | 4,1-4,3 | 1,7 - 2,1 | 0,3 (0,6) | | | (2,2 - 2,9) |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 32 | 650 | 4,2 | - | - |
| | x = 2,25 | | | | | | 650 | 4,1-4,3 | | |
| ca.37 | 12,8 | 750-755 | | | | | 640-700 = 2,0 | | | |
| 2a | 4,0 | 776-789 | | | | | | | | |
| | 930 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|----------------------------------|--------------------------|---------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ... | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 700 | 192,0 - 194,0 (189,0 - 197,0) | 750 - 755* | - | - | - | 650 | 17,0-21,0 (14,5-23,5) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

BOSCH

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Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 110 A 121 LS 3113 RQ 300/1100 PA 646-1
Komb.-Nr. 0 401 858 702

supersedes
company: Steyr
engine: WD 815.67
242 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 11,8+0,1 | 15,0-15,2 | 0,4 (0,75) | | | |
| 300 | 6,1-6,3 | 1,5-2,1 | 0,4 (0,70) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | | | | |
|---------------------------------|-------------------------------|----------------------------|-------------------------------|-------------------------------|---------------------------------|-----------------------|-------------------------------|---------------------------|--------------------------------|---------------------|--------------------------------|---|--|---|--|
| ① | | Setting point | | Test specifications | | ④ | | Setting point | | Test specifications | | ⑤ | | ③ | |
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 | | | | |
| 600 | 15,6-16,4 | 600 | 16,0 | 10,8 4,0 1350 | 1145-1160 1200-1230 0-1,0 | 300 | 6,2 | 100 300 370-430=2,0 | min.7,6 6,1-6,3 2,0 | 1100 600 | 11,8-11,9 12,7-12,8 | | | | |

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|---|------------------|-------------------------------|--|--------------------------------------|---|
| ② | | ③a | ③b | | ⑥ | |
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 1100 | 0,9 bar 150,0-152,0 (147,0-155,0) | - | LDA 600 LDA 500 | 0,9 bar 166,0-170,0 (163,0-173,0) 0 bar 107,0-109,0 (104,0-112,0) | 100 | 200,0-240,0 (196,0-244,0) =RW 20,0-21,0 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

STE 12,0 b 3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-----------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 8 P..LS 3113 + RQ..PA 646-1 | 0,90 | 0 0,65 0,48 | 12,7-12,8 9,7-9,8 12,2-12,4 10,6-10,8 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 12 P 130 A 520/6 RS 3114-1 RQ 425/1250 PA 697
Komb.-Nr. 0 401 830 706

superdes

compaSSCM

1-8 - 5-10- 3 - 7 - 6 - 11- 2 - 9 - 4 -12

engine: V12 \pm 736 KW

0-15-60-75-120-135-180-195-240-255-300-315 ° \pm 0,5 ° (\pm 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 11,4-0,1 | 23,9-24,2 | 0,6 (1,0) | | | |
| 425 | 6,3-6,5 | 2,7-3,3 | 1,0 (1,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | | | | |
|---------------------------------|--------------------------|----------------------------|--------------------------|--------------------------|------------------------|-----------------------|--------------------------|-----------------------------|---------------------|--------------------------|----------------------|--------------------------|---------|--------------------------|--|
| ① | | Setting point | | Test specifications | | ④ | | Setting point | | Test specifications | | ⑤ | | ③ | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | |
| 700 | 19,2-20,8 | 700 | 20,0 | 10,4 4,0 | 1295-1310 1345-1375 | 425 | 6,4 | 100 425 465-505 = 2,0 | min. 7,9 6,3-6,5 | 1250 750 | 11,4+0,1 11,3+0,2 | | | | |
| VH max. 46 ° | | | | 1450 | 0 - 1,0 | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|---|------------------|-------------------------------|---------------------------------------|--------------------------------------|----------------------------------|
| ② | | ③a | ③b | | ⑥ | |
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| LDA 1000 | 0,9 bar 239,0-242,0 (235,5-245,5) | - | LDA 750 | 0 bar 174,0-177,0 (170,5-180,5) | - | - |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

SSC 31,8 b - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|------------------------------------|---------------------------------|-------------------------------------|---|
| PE 12..RS 3114-1 + RQ .. PA 697 | 0,90 | 0 0,420 0,275 | 11,4-11,5 9,4-9,5 10,9-11,0 10,0-10,2 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 720 RS 3115
Komb.-Nr. 0 401 846 800
Beachte Seite 2

RQ 200/1100 PA 719

supersedes—
company: Scania
engine: DN 11 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,3-3,4}{(3,25-3,45)}$ mm (from BDG) RW = 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (icrque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 600 | 12,4+0,1 | 11,9-12,1 | 0,5(0,7) | | | |
| 225 | 5,4-5,6 | 2,0-2,4 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | | ① | | Full-load speed regulation Setting point rev/min 3 | | Control rod travel mm 4 | | Test specifications rev/min 5 | | ④ | | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | | Test specifications rev/min 9 | | Control rod travel mm 10 | | ⑤ | | Torque control rev/min 11 | | Control rod travel mm 12 | | ③ | |
|---|-----------|-------------------------------|------|------|-----------|---|-----|-------------------------------|-----------|-------------------------------------|---|---|--|--|--|-------------------------------|--|-------------------------------------|--|--------------------------------|--|---|--|---------------------------------|--|--------------------------------|--|---|--|
| 1300 | 15,2-17,8 | 1300 | 16,5 | 11,4 | 1145-1160 | 225 | 5,5 | 100 | min. 6,9 | - | - | | | | | | | | | | | | | | | | | | |
| | | | | 4,0 | 1260-1290 | | | 225 | 5,4 - 5,6 | | | | | | | | | | | | | | | | | | | | |
| | | | | 1400 | 0-1,0 | | | 330-370 | = 2,0 | | | | | | | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | | ② | | Control rod stop rev/min 3 | | 3a | | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | | 3b | | Starting fuel delivery Idle speed rev/min 6 | | cm ³ /1000 strokes/mm 7 | | Control rod travel mm RW | | ⑥ | |
|---|------------------------------|-------------------------------------|---|---|------|----------------------------------|-----|------------------------------------|--|---|--|-------------------------------------|--|----|--|--|--|---------------------------------------|--|--------------------------------|--|---|--|
| 600 | 119,0-121,0 (117,0-123,0) | - | - | - | 1100 | 119,5-124,5 (117,0-127,0) | 100 | 240,0-290,0 =20,0-21,0 mm RW | | | | | | | | | | | | | | | |

Checking values in brackets

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 10. 4. 1984
- Start of fuel delivery-engine: 21° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 720 RS 3125 RQ 250/1100 PA 705
 Komb.-Nr. 0 401 846 792
 Calibrating nozzle-and holder assembly 0 688 901 019
 Test-pressure line 1 680 750 067

supersedes
 company: RABA
 engine: D 11 T
 206 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0-3,1}{(2,95-3,15)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 11,0+0,1 | 18,6-18,8 | 0,5(0,9) | | | |
| 250 | 6,0-6,2 | 1,7-2,3 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | | | Idle speed regulation Setting point rev/min 7 | | | | Torque control rev/min 11 | |
|---|-------------------------------|---|-------------------------------------|-------------------------------|-------------------------------|--|--------------------------------|---------|------|---------------------------------|--|
| Control rod travel mm 2 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Control rod travel mm 8 | Control rod travel mm 9 | Control rod travel mm 10 | Control rod travel mm 12 | | | | |
| 600 | 19,2-20,8 | 20,0 | 10,0 | 1145-1160 | 250 | 6,0 | 100 | min.7,5 | 1100 | 11,0-11,1 | |
| VH = max. 46° | | | 4,0 1350 | 1225-1255 0-1,0 | | | 250 320-360 = 2,0 | 5,9-6,1 | 700 | 11,0-11,2 | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|---|---|----------------------------------|--|--|---|--|---|
| cm ³ /-1000 strokes 2 | Control rod stop mm 3a | Control rod stop mm 3a | Fuel delivery characteristics cm ³ /-1000 strokes 5 | Fuel delivery characteristics cm ³ /-1000 strokes 5 | Starting fuel delivery cm ³ /1000 strokes/mm 7 | Control rod travel mm 6 | |
| LDA 1100 | 0,9 bar 186,0-188,0 (183,0-191,0) | - | LDA 1100 | 0 bar 130,0-132,0 (127,0-135,0) | - | - | - |
| | | | LDA 700 | 0 bar 179,0-185,0 (176,0-188,0) | | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator.

RAB 11,0 a

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | | Control rod travel - diminution difference |
|---------------------------------|----------------------|----------------------|-----|--|
| | Gauge pressure = bar | Gauge pressure = bar | bar | mm (1) |
| PE 6 P..RS 3125 + RQ..PA 705 | 0,90 | 0 0,66 0,38 | | 11,0-11,1 8,5-8,6 10,4-10,5 9,0-9,4 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131 RQ 300/1100 PA 722
Komb.-Nr. 0 402 046 750

supersedes—
company: DB
engine: ~~OM~~ 427 H
150 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,3-4,4}{(4,25-4,45)}$ mm (from BDC) cyl. 6

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 9,4+0,1 | 11,0-11,2 | 0,4(0,8) | | | |
| 300 | 7,2-7,4 | 1,4-2,0 | 0,4 (0,8) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point | | | | Idle speed regulation Setting point | | | | Torque control ③ | |
|-----------------------------------|-----------------------|---|-----------------------|-----------------------|-----------------------------------|--|-----------------------|-----------------------------|------------------------------|--------------------------|---|
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 600 | 13,0-14,0 | 600 | 13,5 | 8,4 4,0 1300 | 1145-1160 1195-1225 0 - 1,5 | 300 | 7,3 | 100 300 380-420 = 2,0 | min. 8,8 7,2-7,4 = 2,0 | 100 500 850 950 | 9,4-9,5 10,2-10,4 9,8-10,1 9,6-9,8 |

Torque-control travel on flyweight assembly dimension a = 0,50 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|--------------------------------|---------------------|----------------------------------|--------------------------------|--|----------------------------------|
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1100 | 110,0-112,0 (107,5-114,5) | - | 500 | 96,0-100,0 (93,0-103,0) | 100 | 130,0-150,0 (126,0-154,0) |

Checking values in brackets

5.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 10,0 f

1. Edition

En

PE 6 P 110 A 320 RS 3132 RSV 200-1100 P. 1/421-1
Komb.-Nr. 0 401 876 738

supersedes—
company: Volvo-Penta
engine: TID 100 K
225 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,5-3,6 \\ (3,45-3,65) \end{matrix}$ mm (from BD ϕ) RW = 9,0-12,0 mm

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 700 | 12,6±0,1 | 16,5-16,7 | 0,4 (0,75) | | | 2,5±0,1 |
| 200 | 4,2-4,4 | 1,7-2,1 | 0,3 (0,6) | | | (2,2-2,9) |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control rev/min 10 | Control rod travel mm 11 |
|---|--------------------|-----------------|--------------------------|---|---|--|-------------------|-------------------------------|-----------------------------------|--------------------------------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | | |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 20 | 250 | 3,8 | - | - |
| 2a | x = 4,0 | | | | | | 250 | 4,2-4,4 | | |
| | 1,6 | 1140-1150 | | | | | 245-305 | = 2,0 | | |
| | 4,0 | 1175-1205 | | | | | | | | |
| | 1340 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|------------------------------------|---|----------------------------------|------------------------------------|-----------------------------|------------------------------------|--------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 700 | 165,0-167,0 (163,0-170,0) | 1140-1150* | - | - | - | - | - | - |
| | | | | | 200 | 17,0-21,0 (14,5-23,5) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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D17

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 ROL 12,2 f

1. Edition

En

PE 6 P 120 A 320 RS 3135 RQV 250-975 PA 709
 Komb.-Nr. 0 401 846 802
 1-4-2-6-3-5 je 60 ° ± 0,5 ° (± 0,75 °)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
 company: Rolls Royce
 engine: Eagle 3 LI
 197 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

 Mark for end of pump delivery 6.25°
 before end of pump delivery, cyl. 1

A. Fuel Injection Pump Settings

 Port closing at prestroke (5,15⁵-5,35^{2-5,3}) mm (from BDC) RW = 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 900 | 12,0+0,1 | 18,9-19,1 | 0,5 (0,9) | | | |
| 250 | 6,7-6,9 | 1,7-2,3 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|----------------------------|--|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | ①a Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm ④ | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm ③ | rev/min 10 | mm 11 |
| max. | 1040 | 15,2-17,8 | - | - | - | ca. 20 | 100 | min. 8,2 | 250 | 1,1-1,3 |
| ca. 64 | 11,0 4,0 1250 | 1015-1025 1085-1115 0 - 1,0 | | | | 325-475 | 250 | 6,7-6,9 | 330 450 1020 1100 | 2,1-2,6 3,2-3,5 8,2-8,4 9,2-9,4 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery Idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|--|----------------------------------|------------------------------------|--|------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 900 | 189,0-191,0 (186,0-194,0) | 1015-1025* | 500 | 167,0-173,0 (164,0-176,0) | 100 | 180,0-210,0 (176,0-214,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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D18

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Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 120 A 320 RS 3136 RQ 750 PA 597
Komb.-Nr. 0 402 046 754

supersedes -
company: RVI
engine: MIDR 063540

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$
($3,45-3,65$) mm (from BDC) RW = $9,0-12,0$ mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 14,8+0,1 | 33,1-33,3 | 0,5 (0,9) | | | |
| 250 | 4,8-5,0 | 1,5-2,1 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|-------------------------------|-------------------------------|--|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------------|----------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Test specifications Control rod travel mm 5 | rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Test specifications rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| - | - | - | - | 13,8 4,0 900 | 750-755 787-800 0 - 1,0 | - | - | - | - | - | - |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $750-755 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|-------------------------------------|------------------|-------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| 700 | 331,0-333,0 (328,0-336,0) | - | - | - | - | - |

Checking values in brackets

5.85

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,5 a 1

1. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 RS 3140 RQV 275-1150 PA 501-3

Komb.-Nr. 0 402 046 760

supersedes

compared IVECO-UNIC
engine 8460.21.002
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1150 | 11,5+0,1 | 14,6-14,9 | 0,4 (0,75) | | | |
| 275 | 6,7-6,9 | 2,2-2,7 | 0,45(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | | | | |
|--|--|--|--------------------------|--|--------------|-------------------------------|---|--|-------------------------|-------------------------------|----|---------------------------|--|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | ①a | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | ④ | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | ③ | rev/min 10 | mm 11 |
| max. | 1210 | 15,2-17,8 | | - | - | - | | ca. 15 | 100 275 | min.8,4 6,8-7,0 | | 250 500 900 1150 | 1,2-1,4 3,6-4,1 6,3-6,5 7,9-8,1 |
| ca. 65 | 10,5 4,0 1450 | 1190-1200 1300-1330 0-1,0 | | | | | | 290-405 | | | ③a | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | | |
|---|---|--|----------------------------------|--------------|--|--------------|------------------------------------|--------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | ④a | rev/min 4 | cm ³ /1000 strokes 5b | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1150 | 0,7 bar 146,0-149,0 (143,5-151,5) | 1190-1200* | | LDA 500 | 0 bar 131,0-134,0 (128,5-136,5) | 100 | 140,0-160,0 (136,0-164,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

D20

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D20

D. Adjustment Test for Manifold Pressure Compensator

UNI 9,5 a 1

Test at n = 500 rev/min decreasing pressure - in bar, gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 6 P..RS 3140 + RQV..PA 501-3 | 0,70 | 0 0,265 | 11,5-11,6 11,0-11,1 11,2-11,3 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 3142 RQ 750 PA 584
Komb.-Nr. 0 401 846 807
1-4-2-6-3-5 je 60° ± 0,5° (± 0,75°)

supersedes
company: Rolls Royce
engine: C 6.132 G
132 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke ^{3,4-3,5}
(3,35-3,55) mm (from BDC) RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 700 | 14,9+0,1 | 16,4-16,6 | 0,4(0,75) | | | |
| 300 | 8,6-8,8 | 1,9-2,5 | 0,45(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | |
|---------------------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------------|-----------------------|-----------------------|-----------------------|---------|-----------------------|---------|-----------------------|
| ① | | Setting point | | Test specifications | | Setting point | | Test specifications | | ③ | | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| - | - | - | - | 13,9 4,0 850 | 750-755 785-795 0-1,0 | - | - | - | - | - | - | |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 750-755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|--------------------------------|------------------|-------------------------------|--------------------------------|--------------------------------------|----------------------------------|
| ② | | ③a | ③b | | ⑥ | |
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 700 | 164,0-166,0 (161,0-169,0) | - | - | - | - | - |

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 6,6 b

1. Edition

En

PES 6 P 110 A 720 RS 3145 RQV 350-1300 PA 748

Komb.-Nr. 9 400 087 305

supersedes:

 company: Ford
 engine: 6,6 l TC
 123 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $4,25-4,35$ mm (from BDC)
 ($4,20-4,40$)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1300 | 11,6+0,1 | 9,4-9,7 | 0,4(0,75) | | | |
| 350 | 6,9-7,1 | 1,0-1,5 | 0,45(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|---------------------------------------|-------------|-----------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1300 | 15,2-17,8 | - | - | - | ca. 16 | 100 | min. 10,0 | 350 | 0,6-1,3 |
| ca. 64 | 10,6 | 1360-1370 | | | | | 350 | 6,9-7,1 | 500 | 2,3-2,7 |
| | 4,0 | 1470-1500 | | | | | 580-640=2,0 | | 800 | 4,0-4,3 |
| | 1600 | 0-1,0 | | | | 370-440 | | | 1000 | 5,0-5,3 |
| | | | | | | | | | 1300 | 7,3 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|--|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1300 | 93,5-96,5 (91,0-99,0) | 1360-1370* | 600 | 87,5-91,5 (84,5-94,5) | 100 | 105,0-125,0 (101,0-129,0) = 20,0-21,0 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 15,9 b 1

1. Edition

En

PES 6 P 120 A 320 RS 7105 RQV 350-900 PA 730

Komb.-Nr. 0 402 746 802

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
company: Baudouin
engine: 6 P 15-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,6-3,7}
(3,55-3,75) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 900 | 12,0+0,1 | 33,9-34,1 | 0,5(0,9) | | | |
| 350 | 4,5-4,7 | 1,7-2,3 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|--------------------------|--------------------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 940 | 15,2-17,8 | - | - | - | ca. 25 | 100 350 | min.6,1 4,5-4,7 | 300 500 800 900 | 0,7-1,0 3,1-3,8 6,5-6,9 8,0 |
| ca. 62 | 11,0 4,0 1150 | 940-950 1000-1030 0-1,0 | | | | 350-450 | | | | |

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|------------------------------------|---|--|------------------------------------|--|------------------------------------|-----------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 900 | 339,0-341,0 (336,0-344,0) | 940-950* | - | - | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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D24

C24

Test Specifications Fuel Injection Pumps ② and Governors

PES 8 P 120 A 320 RS 3146 RQ 275/950 PA 753

supersedes-

Komb.-Nr. 0 402 048 702
1-8-4-2-7-3-6-5 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

company: RVI
engine: MIVR 083530
294 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing mark $11,5^\circ$ after
port closing cylinder 1.

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$
(3,45-3,65) mm (from BDC) RW = 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 500 | 12,2+0,1 | 20,8-21,0 | 0,5(0,9) | | | |
| 275 | 4,1-4,3 | 1,7-2,3 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|----------------------------|-------------------------------|-------------------------------|--------------|-----------------------|-------------------------------|---------------------|--------------------------------|----------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point | | Test specifications | | Setting point | | Test specifications | | rev/min 11 | Control rod travel mm 12 |
| | | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | | |
| 950 | 16,6-18,2 | 950 | 17,4 | 10,0 | 1005-1015 | 275 | 4,2 | 200 | min. 6,2 | 500 | 12,2-12,3 |
| VH= | max. 46 ° | | | 4,0 | 1070-1100 | | | 275 | 4,1-4,3 | 950 | 10,9-11,0 |
| | | | | 1250 | 0 - 1,0 | | | 310-350 | = 2,0 | 675 | 11,8-12,0 |
| | | | | | | | | | | 810 | 11,2-11,5 |

Torque-control travel on flyweight assembly dimension a = 0,50 mm Speed regulation: At 1005-1015 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|---|------------------|-------------------------------|---|--------------------------------------|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 500 | 0,7 bar 208,0-210,0 (205,0-213,0) | - | LDA 950 | 0,7 bar 190,0-194,0 (187,0-197,0) | 100 | 160,0-180,0 (156,0-184,0) |
| | | | LDA 500 | 0 bar 119,0-121,0 (116,0-124,0) | 275 | 17,0-23,0 (14,0-26,0) |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 8 P..RS 3146 + RQ .. PA 753 | 0,70 | 0 0,36 0,14 | 12,2-12,3 9,2-9,3 11,6-11,7 9,9-10,3 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 14,6 s

1. Edition

En

PE 8 P 110 A 320 LS 3802-10 RSV 650-1150 POA 820-2
Komb.-Nr. 0 401 878 704

supersedes
company Daimler-Benz
OM 422
engine

1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Testo-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) cyl. 8
 $(3,95-4,15)$

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 10,9±0,1 | 12,4-12,6 | 0,4(0,8) | | | |
| 650 | 4,8-5,0 | 1,2-1,8 | 0,4(0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever mm | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | Lower rated speed | | 3 Torque control | |
|--|--------------------|------------|--------------------------|---|---|---------------------------------------|-------------------|-----------------------|------------------|-----------------------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 27 | 650 | 4,9 | - | - |
| | X = 3,0 | | | | | | 100 | min. 19,5 | | |
| | 650 | | | | | | 650 | 4,8-5,0 | | |
| ca. 44 | 9,9 | 1160-1170 | | | | | | | | |
| 2a | 4,0 | 1190-1210 | | | | | | | | |
| | 1300 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ...) rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery 5 Idle | | 4a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1100 | 124,0-126,0 (121,5-128,5) | 1160-1170* | - | - | 100 | 130,0-150,0 (126,0-154,0) | 0 | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.85

E3

E3

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 MB 11,0 e 2

1. Edition

En

PE 6 P 120 A 320 LS 3810 RSV 350-1150 POA 810

1- 6- 3- 5- 2 - 4
0-75-120-195-240-315° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company Daimler-Benz

engine: OM 421 A

184 kW

Komb.-Nr. 0 401 876 733

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,1) mm (from BDC) cyl. 6

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1130 | 10,6+0,1 | 16,3-16,5 | 0,5 (0,9) | | | |
| 350 | 4,7-4,9 | 1,6-2,2 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | | | 3 Torque control | |
|--|--------------------------|----------------------------------|--------------------------|---|---|---------------------------------------|--------------------------|-----------|--------------------------|---|
| Degree of deflection of control lever 1 | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | rev/min | Control rod travel mm | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 7 | 8 | 9 | 10 | 11 | 10 | 11 | |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 36 | 350 | 4,8 | - | - |
| | x = | 4,75 | | | | | 100 | min. 19,5 | | |
| | | | | | | | 350 | 4,7-4,9 | | |
| ca. 56 | 9,6 | 1175-1185 | | | | | 330-440 = 2,0 | | | |
| 2a | 4,0 | 1250-1270 | | | | | | | | |
| | 1350 | 0,3-1,4 | | | | | | ** | | |

The numbers denote the sequence of the tests ** Set idle auxiliary-spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery idle | | 4a Idle stop | |
|-----------------------------|---------|-------------------------------|------------------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------|--------------------------|
| Test oil temp. 40°C (104°F) | rev/min | cm ³ /1000 strokes | Note: changed to ... rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | 1130 | 163,0-165,0 (160,0-168,0) | 1175-1185* | - | - | 100 | 140,0-160,0 (136,0-164,0) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

€ 3.85

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E4

E4

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 e 3

1. Edition

En

PE 6 P 120 A 320 LS 3810-10 RQV 350-1150 PA 720
1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° + 0,5° (+ 0,75°)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes

company Daimler-Benz

OM 421 A

engine: 124 kW

Komb.-Nr. 0 401 846 775

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$
(3,95-4,15) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1150 | 11,0+0,1 | 16,3 - 16,5 | 0,5(0,9) | | | |
| 350 | 4,8-5,0 | 1,4 - 2,0 | 0,8(1,2) | | | |
| 600 | - | C, Sp. 4 u.5 | 0,8(1,2) | | | |
| 500 | | | | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------|--------------------------|---------------------------------------|---------|--------------------------|-------------------------|---------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1250 | 15,2-17,8 | - | - | - | ca. 11 | 100 | min. 6,7 | 300 | 0,6-0,9 |
| ca. 62 | 10,0 | 1175-1185 | | | | | 350 | 4,8-5,0 | 580 | 3,6-3,7 |
| | 4,0 | 1280-1290 | | | | | 350-500 | | 870 | 5,2-5,3 |
| | 1360 | 0-1,5 | | | | | | | 1150 | 7,6 |

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|---|---|--|---|--|-------------------------------|-----------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1150 | 0,7 bar 163,0-165,0 (160,0-168,0) | 1175-1185 * | LDA 600 | 0,7 bar 170,0-176,0 (167,0-179,0) | 100 | 140,0-160,0 (136,0-164,0) | 1050 | 11,0+0,1 |
| LDA 1150 ** | 0,7 bar 128,0-131,0 (125,0-134,0) | | LDA 500 | 0 bar 146,0-148,0 (143,0-151,0) | | | 850 | 11,3+0,2 |
| | | | | | | | 950 | 11,1+0,1 |

Checking values in brackets

** Adjusted at the inner lever of the reduced-delivery stop ^{*1 mm less control rod travel than col. 2}

4.85

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E5

E5

D. Adjustment Test for Manifold Pressure Compensator

MB 11,0 e 3

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel: | diminution |
|-----------------------------------|----------------------|----------------------|---------------------|------------|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) | difference |
| PE6P..LS 3810-10 + RQV..PA 720 | 0,70 | 0 | 11,3 - 11,5 | |
| | | 0,45 | 10,8 - 11,0 | |
| | | | 11,1 - 11,2 | |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,0 q 4

1. Edition

En

PE 6 P 120 A 320 LS 3815-10 RSV 750-1150 P 1 A 820-4

1 - 6 - 3 - 5 - 2 - 4

0 - 75 - 120 - 195 - 240 - 315° + 0,5° (+ 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

company: Daimler-Benz

engine: OM 421 A

184 kW

Komb.-Nr. 0 401 876 740

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$ mm (from BDC) Zyl. 6
(3,95-4,15)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1180 | 11,0+0,1 | 16,3 - 16,5 | 0,5 (0,9) | | | |
| 750 | 3,4-3,6 | 1,8 - 2,4 | 0,8 (1,2) | | | |
| 975 | - | C, Sp. 4 u. 5 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Degree of deflection of control lever 1 | Upper rated speed rev/min | | Intermediate rated speed | | | Control-lever deflection in degrees 7 | Lower rated speed | | Torque control | |
|--|---------------------------|----------------------------------|--------------------------|---|---|--|-------------------|--------------------------|----------------|--------------------------|
| | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 36 | 750 | 3,7 | 1180 | 11,0-11,1 |
| | | x = 4,0 | | | | | 750 | 3,6-3,8 | 975 | 11,6-11,8 |
| ca. 60 | 10,0 | 1210-1220 | | | | | 655 - 815 = 2,0 | | | |
| (2a) | 4,0 | 1240-1260 | | | | | | | | |
| | 1350 | 0,3- 1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| (2b) Full-load stop Test oil temp. 40°C (104°F) | | (6) Rotational-speed limit Note: changed to ... rev/min | (3a) Fuel delivery characteristics | | Starting fuel delivery idle | | (5) (4a) Idle stop | |
|--|-------------------------------|--|------------------------------------|-------------------------------|--------------------------------|-------------------------------|--------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | 3 | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1180 | 163,0-165,0 (160,0-168,0) | 1160-1170* ** | 975 | 174,0-180,0 (171,0-183,0) | 100 | 140,0-160,0 (136,0-164,0) | - | - |

Checking values in brackets

* † mm less control rod travel than col. 2

** To check the full-load delivery, there may be 1 mm speed regulation only at 1210 - 1220 min/1.

3.85

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 w 1

1. Edition

PE 6 P 120 A 720 RS 7007 RQV 275-1000 PA 539-5
Komb.-Nr. 0 402 646 818
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes
company Saab-Scania
engine: DSC 1101

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,5-4,6 \\ (4,45-4,65) \end{matrix}$ mm (from BDC) $\begin{matrix} RW = 6,0-8,0 \text{ mm} \end{matrix}$

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 14,7+0,1 | 21,0-21,2 | 0,7(1,0) | | | 3,3±0,1 |
| 275 | 4,4-4,6 | 1,1-1,8 | 0,3(0,6) | | | (3,0-3,5) |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|----------------------|-------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1040 | 15,2-17,8 | - | - | - | ca. 8 | 100 | min. 5,9 | 250 | 1,5-1,7 |
| ca. 62 | 13,7 4,0 1350 | 1040-1050 1210-1240 0-1,0 | | | | | 275 320-380 = 2,0 | 4,4-4,6 = 2,0 | 500 750 1000 | 3,6-4,0 5,2-5,5 7,7 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|---|--|---|---|--|-------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 700 | 0,9 bar 210,0-212,0 (207,0-215,0) | 1040-1050* | LDA 1000 | 0,9 bar 201,0-209,0 (199,0-211,0) | 100 | 240,0-290,0 = 20,0-21,0 mm RW | | |
| | | | LDA 500 | 0 bar 164,0-168,0 (162,0-170,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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E8

E8

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 w 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|------------------------------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 7007 + RQV..PA 539-5 | 0,90 | 0 0,41 0,29 | 14,7-14,8 11,8-11,9 14,0-14,1 12,4-12,6 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 2. 11. 1983
- Start of fuel delivery-engine: 22° before TDC at control-rod travel 6 - 8 mm
- Firing sequence, engine : 1-5-3-6-2-4

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 d 1

1. Edition

En

PE 8 P 120 A 920/4 LS 7008 RQV 275-950 PA 547-4
 Komb.-Nr. 0 402 648 811
 1- 2- 7- 3 - 4 - 5 - 6 - 8
 0-45-90-135-180-225-270-315° ± 0,5° (± 0,75°)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes
 companion Saab-Scania
 engine: DSC 1406

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,5-4,6$
 (4,45-4,65) mm (from BDC) RW = 6,0-8,0 mm

| Rotational speed | Control rod travel | Fuel delivery | Difference | Control rod travel | Fuel delivery | Spring pre-tensioning (torque-control valve) |
|------------------|--------------------|------------------------------|------------------------------|--------------------|------------------------------|--|
| rev/min | mm | cm ³ /100 strokes | cm ³ /100 strokes | mm | cm ³ /100 strokes | mm |
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 700 | 14,2+0,1 | 20,1-20,3 | 0,7(1,0) | | | 3,3 [±] 0,1 |
| 275 | 4,4-4,6 | 1,1-1,8 | 0,3(0,6) | | | (3,0-3,5) |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------|--------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------------|-----------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 990 | 15,2-17,8 | - | - | - | ca. 8 | 100 | min. 5,9 | 250 | 1,5-1,7 |
| | | | | | | | 275 | 4,4-4,6 | 500 | 3,6-4,0 |
| | | | | | | | 320-380 = 2,0 | | 750 | 5,2-5,5 |
| | | | | | | | | | 1000 | 7,7 |
| ca. 60 | 13,2 4,0 1300 | 990-1000 1170-1200 0-1,0 | | | | | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|---|--|---|---|---|-------------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 700 | 0,9 bar 201,0-203,0 (198,0-206,0) | 990-1000* | LDA 950 | 0,9 bar 194,0-202,0 (192,0-204,0) | 100 | 250,0-300,0 = 20,0-21,0 mm RW | - | - |
| | | | LDA 500 | 0 bar 156,0-160,0 (154,0-162,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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E10

E 10

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 d 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|------------------------------------|---------------------------------|-------------------------------------|---|
| PE 8 P..LS 7008 + RQV..PA 547-4 | 0,90 | 0 0,35 0,24 | 14,2-14,3 11,5-11,6 13,6-13,7 12,1-12,3 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 2. 11. 1983
- Start of fuel delivery-engine: 22° before TDC at control-rod travel 6 - 8 mm
- Firing sequence, engine : 1-5-4-2-6-3-7-8

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 GUS 18,0 b

1. Edition

En

PE 6 P 130 A 720 RS 7009 RQV 350-900 PA 749
Komb.-Nr. 0 402 646 823
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes -
company: Guascor
F 180
engine: 220 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,10} (2,95-3,15) mm (from BDC) RW = 9,0 - 12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 900 | 13,8+0,1 | 31,7 - 32,0 | 0,6 (1,0) | | | |
| 350 | 5,6-5,8 | 2,6 - 3,2 | 1,0 (1,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 940 | 15,2-17,8 | | | | ca. 12 | 100 | min.7,2 | 300 | 0,9-1,2 |
| ca. 62 | 12,8 | 940-950 | | | | | 350 | 5,6-5,8 | 700 | 4,7-5,2 |
| | 4,0 | 1010-1040 | | | | | | | 900 | 7,5-7,8 |
| | 1150 | 0-1,0 | | | | 355-455 | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|--|----------------------------------|------------------------------------|--|------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 900 | 317,0-320,0 (313,5-323,5) | 940-950 * | | | 350 | 26,0-32,0 (22,0-36,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

E12

E12

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Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 7102 RQ 200/1000 PA 745
Komb.-Nr. 0 402 646 822

supersedes -
company: Scania
engine: DS9 03

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 5,0-5,1 mm (from BDC)
(4,95-5,15)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 12,0+0,1 | 16,3 - 16,5 | 0,6(0,9) | | | 3,3 ± 0,1 |
| 225 | 4,8-5,0 | 1,5 - 1,9 | 0,3(0,6) | | | (3,0 - 3,5) ** |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | | | Idle speed regulation Setting point rev/min 7 | | | | Torque control rev/min 11 | |
|---|-------------------------------|---|-------------------------------------|-------------------------------|-------------------------------|--|--------------------------------|---|--|---------------------------------|--|
| Control rod travel mm 2 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Control rod travel mm 8 | Control rod travel mm 9 | Control rod travel mm 10 | Control rod travel mm 12 | | | | |
| 15,2-17,8 | 16,5 | 11,0 | 1045-1060 | 4,9 | 100 | min. 6,3 | - | - | | | |
| | | 4,0 | 1150-1180 | | 225 | 4,8-5,0 | | | | | |
| | | 1300 | 0-1,0 | | 305- | 345=2,0 | | | | | |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1045-1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|---|---|----------------------------------|---|---|---|--|-------------------------------|
| cm ³ /-1000 strokes 2 | Control rod travel mm 3a | Control rod travel mm 3b | cm ³ /-1000 strokes 5 | Control rod travel mm 6 | cm ³ /1000 strokes/mm 7 | Control rod travel mm 6 | Control rod travel mm 6 |
| LDA 700 | 0,9 bar 163,0 - 165,0 (160,0 - 168,0) | - | 0,9 bar 162,0 - 170,0 (160,0 - 172,0) | 100 | 240,0 - 290,0 = 20,0 - 21,0 mm RW | | |
| | | | LDA 500 | 0 bar 141,0 - 145,0 (139,0 - 147,0) | | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

SCA 9,0 b

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel | diminution difference |
|-----------------------------------|----------------------|----------------------|--------------------|-----------------------|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) | |
| PE 6 P.. RS 7102 + RQ.. PA 745 | 0,90 | | 12,0 - 12,1 | |
| | | 0 | 11,3 - 11,4 | |
| | | 0,42 | 11,7 - 11,8 | |
| | | 0,38 | 11,5 - 11,7 | |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 4. 10. 1984
- Start of fuel delivery-engine: 15° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 2,9 - 3,1 mm.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/SCA 9,0 c

1. Edition

En

PE 6 P 120 A 320 RS 7103 RQV 200-1100 PA 712
 Komb.-Nr. 0 402 746 801
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
 company: Saab-Scania
 engine: DSC 901

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,5-4,6}
 (4,45-4,65) mm (from BDC) RW 6,0 - 8,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 700 | 12,5+0,1 | 17,8 - 18,0 | 0,7(1,0) | | | 3,3 ± 0,1 |
| 225 | 4,6-4,8 | 1,5 - 1,9 | 0,3(0,6) | | | (3,0 - 3,5) ** |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|---------------------------------------|---------------------------------------|--|--------------|----------------------------|--|--------------------|----------------------------|---------------------------|--|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1140 | 15,2-17,8 | - | - | - | ca. 8 | 100 | min.6,1 | 225 | 0,8-0,9 |
| ca.63 | 11,5 4,0 1450 | 1140-1150 1290-1320 0 - 1,0 | | | | | 225 290-350=2,0 | 4,6-4,8 | 350 420 550 1140 | 2,2-3,1 3,6-4,5 4,9-5,1 8,6-8,7 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 | | Rotational-speed limitation intermediate speed 4a | Fuel delivery characteristics high idle speed 5a | | Starting fuel delivery idle switching point 6 | | Torque-control travel 5 | |
|--|---|---|--|---|---|------------------------------------|----------------------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1100 | 0,9 bar 178,0-180,0 (175,0-183,0) | 1140-1150 * | LDA 1100 | 0,9 bar 177,0-185,0 (175,0-187,0) | 100 | 240,0-290,0 =20,0-21,0 mm RW | - | - |
| | | | LDA 500 | 0 bar 138,0-142,0 (136,0-144,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

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E15

EAS

D. Adjustment Test for Manifold Pressure Compensator

SCA 9,0 c

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- |
|--------------------------------------|---------------------------------|-------------------------------------|------------------------------------|
| | | | diminution difference mm (1) |
| PE 6 P .. RS 7103 + RQV .. PA 712 | 0,90 | 0 | 12,5 - 12,6 |
| | | 0,435 | 10,2 - 10,5 |
| | | 0,335 | 11,9 - 12,0 |
| | | | 10,6 - 10,8 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 4. 10. 1984
- Start of fuel delivery-engine: 15° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 2,9 - 3,1 mm.

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 26,5 b 1

1. Edition

En.

PE 8 ZW 160/120 RS 1027/11 RQUV 300-900 ZWA 51 R
Komb.-Nr. 0 402 438 025

Replaces-

Firm: MTU

Engine:

1-2-6-3-4-5-7-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC) cyl. 8

| Rotational speed min ⁻¹ 1 | Control-rod travel mm 2 | Fuel delivery Average value cm ³ /1000 strokes 3 | Difference in fuel delivery cm ³ /1000 strokes 4 | Fuel delivery Checking values cm ³ /1000 strokes 5 | Spring pre-tension (torque-control valve) |
|--|-------------------------------|--|--|--|--|
| 600 | 18 | 513,0-523,0 | 16,0 (24,0) | 510,0-526,0 | |
| 600 | 9 | 140,0-160,0 | 12,0 (18,0) | 135,0-165,0 | |
| 300 | 9 | 72,0-92,0 | 11,0 (16,0) | 67,0-97,0 | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor settings

| Upper rated speed | | | Medium rated speed | | | Lower rated speed | | | Torque control | |
|---------------------------------------|------------------------------|--|---------------------------------------|----------------------------------|-----------------------------------|---------------------------------------|----------------------------------|-----------------------------------|-------------------------------|-------------------------------|
| Control lever deflection degrees 1 | mm min ⁻¹ 2 | Control-rod travel mm min ⁻¹ 3 | Control lever deflection degrees 4 | mm min ⁻¹ 5 | Control-rod travel mm 6 | Control lever deflection degrees 7 | mm min ⁻¹ 8 | Control-rod travel mm 9 | mm min ⁻¹ 10 | mm min ⁻¹ 11 |
| ca. 79 | 700 | 18,0-18,1 | ca. 27 | 375 | 8,0 | ca. 21 | 375 | 8,0 | - | - |
| ca. 79 | 17,0 4,0 1100 | 905-925 1000-1050 0 - 2,0 | | 200 300 500 590-720 = 0 | 14,3-17,2 10,3-11,8 2,5-3,7 | | 200 300 500 590-720 = 0 | 14,3-17,2 10,3-11,8 2,5-3,7 | | |

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

| Full-load delivery on governor control lever (Test oil temperature 40°) | | Control rod stop at speed | Fuel-delivery characteristics | | Starting fuel delivery | |
|---|------------------------------------|-------------------------------------|-------------------------------|------------------------------------|------------------------|------------------------------------|
| min ⁻¹ 1 | cm ³ /1000 strokes 2 | Idle stop min ⁻¹ 3 | min ⁻¹ 4 | cm ³ /1000 strokes 5 | min ⁻¹ 6 | cm ³ /1000 strokes 7 |
| - | not known | 300 RW = 8,0 mm | - | - | - | - |

Checking values in brackets

1.85

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E17

E17

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 19,9 e 1

1. Edition

En.

PE 6 ZW 160/120 RS 1028/11 RQUV 300-900 ZWA 51 R

Komb.-Nr. 0 402 436 058

Replaces -

Firm: MTU

Engine: 396

1- 2- 3 - 4 - 5 - 6

0-45-120-165-240-285° ± 0,5° (± 0,75°)

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

 Port closing at prestroke ^{2,5-2,6}
 (2,45-2,65) mm (from BDC) cyl. 6

| Rotational speed min ⁻¹ 1 | Control-rod travel mm 2 | Fuel delivery Average value cm ³ /1000 strokes 3 | Difference in fuel delivery cm ³ /1000 strokes 4 | Fuel delivery Checking values cm ³ /1000 strokes 5 | Spring pre-tension (torque-control valve) |
|--|-------------------------------|--|--|--|--|
| 600 | 18,0 | 513,0-523,0 | 16,0 (24,0) | 510,0-526,0 | - |
| 600 | 9,0 | 140,0-160,0 | 12,0 (18,0) | 135,0-165,0 | - |

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

| Upper rated speed | | | Medium rated speed | | | Lower rated speed | | | Torque control | |
|---------------------------------------|------------------------------|---|---------------------------------------|----------------------------------|-----------------------------------|---------------------------------------|------------------------------|----------------------------|-------------------------------|-------------------------------|
| Control lever deflection degrees 1 | mm min ⁻¹ 2 | Control-rod travel mm min ⁻¹ 3 | Control lever deflection degrees 4 | mm min ⁻¹ 5 | Control-rod travel mm 6 | Control lever deflection degrees 7 | mm min ⁻¹ 8 | Control-rod travel mm 9 | mm min ⁻¹ 10 | mm min ⁻¹ 11 |
| ca. 79 | 700 | 18,0-18,1 | ca. 27 | 375 | 8,0 | ca. 21 | 300 | 8,0 | - | - |
| ca. 79 | 17,0 4,0 1100 | 905-925 1000-1050 0-2,0 | (max. 30) | 200 300 500 590-720 = 0 | 14,3-17,2 10,3-11,8 2,5-3,7 | | 200 400 485-590 = 0 | 10,8-14,2 3,9-5,0 | | |

Torque control travel a mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

| Full-load delivery on governor control lever (Test oil temperature 40°) | | Control rod stop at speed | Fuel-delivery characteristics | | Starting fuel delivery | |
|---|------------------------------------|---------------------------|-------------------------------|------------------------------------|------------------------|------------------------------------|
| min ⁻¹ 1 | cm ³ /1000 strokes 2 | idle stop 3 | min ⁻¹ 4 | cm ³ /1000 strokes 5 | min ⁻¹ 6 | cm ³ /1000 strokes 7 |
| - | not known | 300 RW = 8,0 mm | - | - | - | - |

Checking values in brackets

Testoil-ISO 4113

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 19,9 e

1. Edition

En.

PE 6 ZW 160/120 RS 1028/11 RQV 300-1200 ZWA 51 R

Replaces -

Komb.-Nr. 0 402 436 057

Firm: MTU

1- 2- 3 - 4 - 5 - 6

Engine: 6 V 331

0-45-120-165-240-285° ± 0,5° (± 0,75°)

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke^{2,5-2,6(2,45-2,65)}mm (from BDC) cyl. 6

| Rotational speed min ⁻¹ 1 | Control-rod travel mm 2 | Fuel delivery Average value cm ³ /1000 strokes 3 | Difference in fuel delivery cm ³ /1000 strokes 4 | Fuel delivery Checking values cm ³ /1000 strokes 5 | Spring pre-tension (torque-control valve) |
|--|-------------------------------|--|--|--|--|
| 600 | 18,0 | 513,0-523,0 | 16,0 (24,0) | 510,0-526,0 | |
| 600 | 9,0 | 140,0-160,0 | 12,0 (18,0) | 135,0-165,0 | |
| 300 | 9,0 | 72,0-92,0 | 11,0 (16,0) | 67,0-97,0 | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

| Upper rated speed | | | Medium rated speed | | | Lower rated speed | | | Torque control | |
|---------------------------------------|------------------------------|--|---------------------------------------|------------------------------|----------------------------|---------------------------------------|------------------------------|----------------------------|-------------------------|-----------------------------|
| Control lever deflection degrees 1 | mm min ⁻¹ 2 | Control-rod travel mm min ⁻¹ 3 | Control lever deflection degrees 4 | mm min ⁻¹ 5 | Control-rod travel mm 6 | Control lever deflection degrees 7 | mm min ⁻¹ 8 | Control-rod travel mm 9 | min ⁻¹ 10 | Control-rod travel mm 11 |
| ca. 84 | 1200 | 18,0-18,1 | ca. 27 (max.30) | 375 | 8,0 | ca. 27 | 300 | 8,0 | - | - |
| | 17,0 | 1205-1225 | | 200 | 14,3-17,2 | | 200 | 10,8-14,2 | | |
| | 4,0 | 1320-1380 | | 300 | 10,3-11,8 | | 400 | 3,9-5,0 | | |
| | 1400 | 0-2,0 | | 500 | 2,5-3,7 | | 485-590 | = 0 | | |
| | | | | 590-720 | = 0 | | | | | |

Torque control travel a =

mm

Speed regulation: At

1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

| Full-load delivery on governor control lever (Test oil temperature 40°) | | Control rod stop at speed | Fuel-delivery characteristics | | Starting fuel delivery | |
|---|------------------------------------|----------------------------------|-------------------------------|------------------------------------|------------------------|------------------------------------|
| min ⁻¹ 1 | cm ³ /1000 strokes 2 | Idle stop min ⁻¹ 3 | min ⁻¹ 4 | cm ³ /1000 strokes 5 | min ⁻¹ 6 | cm ³ /1000 strokes 7 |
| - | not known | 300 RW = 8,0 mm | - | - | - | - |

Checking values in brackets

1.85

Testoil-ISO 4113
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Test specifications

Fuel injection pumps and governors

WP 001/4 MTU 39,7 0 1

1. Edition

En.

PE 12 ZW 150/120 RS 1029

RQV 300-1200 ZWA 51 R

Replaces 3.82

1-12- 9- 4-5 - 8 - 11- 2 - 3 - 10- 7 - 6

Firm: MTU

0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)

Engine: 12 V 331

Note VDT-Gen./7

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Komb.-Nr. 0 412 430 012

Port closing at prestroke ^{2,5-2,6} (2,45-2,65) mm (from BDC) Control rod in central position

| Rotational speed min ⁻¹ | Control-rod travel mm | Fuel delivery Average value cm ³ /1000 strokes | Difference in fuel delivery cm ³ /1000 strokes | Fuel delivery Checking values cm ³ /1000 strokes | Spring pre-tension (torque-control valve) |
|---------------------------------------|--------------------------|---|---|---|--|
| 1 | 2 | 3 | 4 | 5 | |
| 1000 | 8,0 | 501,0-511,0 | 15,0(22,0) | 498,0-514,0 | |
| 600 | 9,0 | 110,0-130,0 | 15,0(22,0) | 107,0-133,0 | |
| 300 | 9,0 | 46,0-72,0 | 10,0(15,0) | 43,0-75,0 | |

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor settings

| Upper rated speed | | | Medium rated speed | | | Lower rated speed | | | Torque control | |
|----------------------------------|----------------------|---|----------------------------------|----------------------|-----------------------|----------------------------------|----------------------|-----------------------|----------------------|-----------------------|
| Control lever deflection degrees | mm min ⁻¹ | Control-rod travel mm min ⁻¹ | Control lever deflection degrees | mm min ⁻¹ | Control-rod travel mm | Control lever deflection degrees | mm min ⁻¹ | Control-rod travel mm | mm min ⁻¹ | Control-rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 84 | 1200 | 18,0-19,0 | ca.27 | 375 | 8,0 | ca.21 | 300 | 8,0 | - | - |
| ca. 84 | 1200 | 18,0-19,0 | | 200 | 14,3-17,2 | | 200 | 10,8-14,2 | | |
| | 17,0 | 1205-1225 | | 300 | 10,3-11,8 | | 400 | 3,9-5,0 | | |
| | 4,0 | 1320-1380 | | 500 | 2,5-3,7 | | 485 | 590 = 0 | | |
| | 1400 | 0 - 2,0 | | 590 | 720 = 0 | | | | | |

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

| Full-load delivery on governor control lever (Test oil temperature 40°) | | Control rod stop at speed | Fuel-delivery characteristics | | idle speed | |
|---|-------------------------------|---------------------------|-------------------------------|-------------------------------|-------------------|-------------------------------|
| min ⁻¹ | cm ³ /1000 strokes | min ⁻¹ | min ⁻¹ | cm ³ /1000 strokes | min ⁻¹ | cm ³ /1000 strokes |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| not known | | - | - | - | 300 | 8,0 mm RW |

Checking values in brackets

2.83

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Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 39,7 c 2

1. Edition

En.

PE 12 ZW 160/120 RS 1029/11 RQUV 300 - 900 ZWA 51 R

Komb.-Nr. 0 402 430 010

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

0-45-60-105-120-165-180-225-240-285-300-345° ± 0,5° (± 0,75°)

Replaces

Firm: MTU

Engine: 396

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

 Port closing at prestroke ^{2,5 -2,6}
 (2,45-2,65) mm (from BDC)

| Rotational speed min ⁻¹ 1 | Control-rod travel mm 2 | Fuel delivery Average value cm ³ /1000 strokes 3 | Difference in fuel delivery cm ³ /1000 strokes 4 | Fuel delivery Checking values cm ³ /1000 strokes 5 | Spring pre-tension (torque-control valve) |
|--|-------------------------------|--|--|--|--|
| 600 | 18,0 | 513,0-523,0 | 22,0 (33,0) | 510,0 - 526,0 | - |
| 600 | 9,0 | 140,0-160,0 | 12,0 (18,0) | 135,0 - 165,0 | |
| 300 | 9,0 | 72,0- 92,0 | 11,0 (16,0) | 67,0 - 97,0 | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

| Upper rated speed | | | Medium rated speed | | | Lower rated speed | | | Torque control | |
|---------------------------------------|------------------------------|---|---------------------------------------|------------------------------|---|---------------------------------------|------------------------------|----------------------------------|-------------------------|-----------------------------|
| Control lever deflection degrees 1 | mm min ⁻¹ 2 | Control-rod travel mm min ⁻¹ 3 | Control lever deflection degrees 4 | mm min ⁻¹ 5 | Control-rod travel mm 6 | Control lever deflection degrees 7 | mm min ⁻¹ 8 | Control-rod travel mm 9 | min ⁻¹ 10 | Control-rod travel mm 11 |
| ca. 79 | 900 | 18,0-18,1 | ca.27 | 375 | 8,0 | ca.21 | 300 | 8,0 | - | - |
| ca. 79 | 700 17,0 4,0 1100 | 18,0-18,1 905 - 925 1000 -1050 0 - 2,0 | | 200 300 500 590 | 14,3-17,2 10,3-11,8 2,5- 3,7 720 = 0 | | 200 400 485 | 10,8-14,2 3,9- 5,0 590 = 0 | | |

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

| Full-load delivery on governor control lever (Test oil temperature 40°) | | Control rod stop at speed | Fuel-delivery characteristics | | Starting fuel delivery | |
|---|------------------------------------|-------------------------------------|-------------------------------|------------------------------------|------------------------|------------------------------------|
| min ⁻¹ 1 | cm ³ /1000 strokes 2 | Idle stop min ⁻¹ 3 | min ⁻¹ 4 | cm ³ /1000 strokes 5 | min ⁻¹ 6 | cm ³ /1000 strokes 7 |
| - | not known | 300 RW = 8,0 mm | - | - | - | - |

Checking values in brackets

2.85

Testoil-ISO 4113

BOSCH

 Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 LOM 3,7 b

3. Edition

En

PES 4 A 80 D 420 LS 1345 RSV 350-750 A 7 B 2183-1 R
Komb.-Nr. 0 400 474 161 A 7 C 2183-1 R

supersedes 10.84
company Lombardini
engine LDA 934

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,7 - 2,8 \\ (2,65-2,85) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 700 | 9,2-9,3 | 5,3-5,4 | 0,25(0,4) | | | |
| 350 | 7,9-8,1 | 3,0-3,6 | 0,2 (0,35) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | Control lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3 - 0,7 | - | - | - | ca. 22 | 350 | 7,5 | - | - |
| | x = 3,75 | | | | | | 100 | min. 19,5 | | |
| ca. 42 | 8,2 | 740-750 | | | | | 350 | 7,9-8,1 | | |
| 2a | 4,0 | 76 -79 | | | | | 410-470 | 2,0 | | |
| | 925 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 | | 4a Idle stop | |
|-----------------------------|--------------------------|-------------------------------|------------------------------|----------------------------------|-------------------------------|-----------------------------|---|---------|-----------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | rev/min | cm ³ /1000 strokes | Note: changed to ... rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 700 | 52,5-53,5 (51,0-55,0) | 740-750* | - | - | - | 100 | 100,0-110,0 (97,0-113,0) = 15,2-15,7 mm RW | 0 - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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E22

E22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 p

4. Edition

En

PES 6 A 80 D 410 RS 2085
Komb.-Nr. 0 400 876 211

RSV 350-1400 A 5 B 716 DL

superseded by 0.84

company: Daimler-Benz

engine: OM 352

93 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1400 | 8,3-8,4 | 5,7-5,8 | 0,2(0,35) | | | |
| 350 | 5,4-5,6 | 0,9-1,5 | 0,2(0,35) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | lose | 350 | 5,5 | 1400 | 8,3-8,4 |
| | x = 6,0 | | | | | | 100 | min.19,0 | 500 | 9,1-9,2 |
| ca. 70 | 7,3 | 1440-1450 | | | | | 350 | 5,4-5,6 | 1000 | 8,5-8,8 |
| 2a | 4,0 | 1495-1515 | | | | | 500-560 | = 2,0 | | |
| | 1650 | 0,7-1,7 | | | | | | ** | | |

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|-----------------------------|-------------------------------|------------------------------|----------------------------------|-------------------------------|--------------------------|-------------------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ... rev/min | | | | | | |
| rev/min | cm ³ /1000 strokes | 3 | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | | 4 | 5 | 6 | 7 | 8 | 9 |
| 1400 | 56,5-57,5 (55,0-59,0) | 1440-1450* | 1000 | 54,0-56,0 (52,5-57,5) | 100 | 78,0-88,0 (75,0-91,0) | - | - |
| | | | 800 | 52,5-54,5 (51,0-56,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 12

1. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 400-1200 A0B 2189 L
Komb.-Nr. 9 400 085 234

supersedes:
Daimler-Benz
company
OM 352
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
 $(2,10-2,30)$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1200 | 10,0+0,1 | 6,2-6,3 | 0,3 (0,5) | | | |
| 400 | 7,1-7,2 | 1,0-1,4 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Degree of deflection of control lever 1 | 1 Upper rated speed rev/min | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|-------------------|-------------------------------|------------------|--------------------------------|
| | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 24 | 400 | 6,7 | 1200 | 10,0-10,1 |
| | x = 3,0 | | | | | | 100 | min. 19,0 | 550 | 10,0-10,2 |
| ca. 49 | 9,0 | 1240-1250 | | | | | 400 | 7,1-7,3 | 450 | 11,6-11,8 |
| 2a | 4,0 | 1295-1325 | | | | | 480-540 | 2,0 | | |
| | 1400 | 0,3-1,7 | | | | | 700 | max. 1,0 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | | |
|-----------------------------|--------------|--|------------------------------------|--------------|------------------------------------|--------------|------------------------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | rev/min 1 | | cm ³ /1000 strokes 2 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| | 1200 | 61,5-62,5 (59,5-64,5) | 1240-1250* | - | - | 100 | 14,2-14,8 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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8.85

E24

E24

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 11

1. Edition

En

PES 6 A 90 D 410 RS 2293 W RQV 300-1425 AB 740 L
Komb.-Nr. 0 400 846 336

supersedes
company Daimler-Benz
OM 352
engine: 115 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1400 | 10,9+0,1 | 7,2-7,3 | 0,3(0,45) | | | |
| 300 | 7,5-7,7 | 0,9-1,5 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1420 | 15,2-17,8 | - | - | - | ca. 14 | 100 | min. 9,1 | 250 | 0,5-0,7 |
| ca. 61 | 9,9 | 1455-1465 | | | | | 300 | 7,5-7,7 | 640 | 3,2-3,6 |
| | 4,0 | 1560-1590 | | | | | | | 1030 | 5,6-5,8 |
| | 1700 | 0-1,0 | | | | 370-520 | | | 1425 | 8,2 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|--|---|-------------------------------|---|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1400 | 71,5-72,5 (69,5-74,5) | 1455-1465* | - | - | 100 | 71,0-81,0 (68,0-84,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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8.85

F1

F1

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 TAE 4,7 a

1. Edition

En

PES 6 A 80 D 410 RS 2405 X

RSV 300-1400 A 2 B 1106 DL

supersedes - Tata

Komb.-Nr. 9 400 030 311

company 692 D
engine.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 mm (from BDC)
(2,10-2,30)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 9,0 | 3,8 - 4,3 | 0,3 | | | |
| 200 | 9,0 | 1,7 - 2,5 | | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|--------------------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 20 | 300 | 7,8 | 600 | Test specification on request! |
| | x = | | | | | | 120 | 19,0-21,0 | | |
| ca. 55 | 7,5 | 1460-1470 | | | | | 300 | 7,6-8,0 | | |
| 2a | 5,5 | 1480-1510 | | | | | 630-690 | = 2,0 | | |
| | 1700 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 Idle stop | |
|----------------------------|-------------------------------|--------------------------|---------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|-------------|-----------------------|
| Test oil temp 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| t | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1400 | 41,0 - 42,0 (39,5 - 43,5) | 1460-1470* | 600 | 33,0-37,0 (32,0-38,0) | - | - | - | - | - |
| | | | 900 | 36,0-40,0 (35,0-41,0) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

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F2

F2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d 1

1. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1150 A 2 C 707-2 L

Komb.-Nr. 0 400 864 062

supersedes
company: KHD
engine: BF 4 L 913
67 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,5-2,6}{(2,45-2,65)}$ mm (from BDC); RW = 9,0 - 12,0 mm

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 12,7+0,1 | 8,2 - 8,3 | 0,3 (0,45) | | | |
| 325 | 8,1-8,3 | 1,0 - 1,6 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|--------------------------|----------------------------------|--------------------------|---|---|--|-----------------|--------------------------|------------------|--------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3 - 0,7 | - | - | - | ca. 20 | 325 | 7,7 | 1000 | 12,7-12,8 |
| | | X = 4,25 | | | | | 100 | min. 19,5 | 500 | 13,7-13,8 |
| | | | | | | | 325 | 8,1-8,3 | 800 | 13,3-13,5 |
| | | | | | | | 655 - 715 = 2,0 | | 900 | 12,9-13,1 |
| ca. 43 | 11,7 | 1040-1050 | | | | | | | | |
| 2a | 4,0 | 1175-1205 | | | | | | | | |
| | 1340 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|---|--------------------------|----------------------------------|---|-----------------------------|-------------------------------|--------------------|----|
| Test oil temp. 40°C (104°F) | Note changed to ...) | Note | Fuel delivery | Starting fuel delivery | Idle | Idle stop | Control rod travel | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1000 | 0,7 bar 81,5 - 82,5 (79,5 - 84,5) | 1040-1050 | LDA 800 | 0,7 bar 86,5 - 88,5 (84,0 - 91,0) | 100 | 115,0-125,0 (112,0-128,0) | - | - |
| | | | LDA 500 | 0 bar 61,5 - 63,5 (59,5 - 65,5) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.85

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F4

F4

D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 4 A..RS 2638 +RSV..A 2 C 707-2L | 0,70 | 0 | 13,7 - 13,8 |
| | | 0,45 | 12,1 - 12,2 |
| | | 0,29 | 13,3 - 13,4 |
| | | | 12,5 - 12,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d

1. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1400 A 8 C 707-3 L
Komb.-Nr. 0 400 864 063

supersedes -
company KHD
engine BF 4 L 913
78 kW/2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDC) RW = 9,0 - 12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1 250 | 12,7-0,1 | 8,3 - 8,4 | 0,3 (0,45) | | | |
| 325 | 8,4-8,6 | 0,8 - 1,4 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | Lower rated speed | | 3 Torque control | |
|--|--------------------|------------|--------------------------|---|---|---------------------------------------|-------------------|---------|------------------|-----------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3 - 0,7 | - | - | - | ca. 16 | 325 | 8,0 | 1250 | 12,7-12,8 |
| | | x = 4,0 | | | | | 325 | 8,4-8,6 | 500 | 13,7-13,8 |
| ca.54 | 11,4 | 1290-1300 | | | | | 610 - 670 = 2,0 | | 850 | 13,2-13,4 |
| 2a | 4,0 | 1375-1405 | | | | | | | 950 | 13,0-13,2 |
| | 1540 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp 40°C (104°F) | | 6 Rotational-speed limitat Note: changed to ..) | 3a Fuel delivery characteristics | | Starting fuel delivery 5 Idle | | 4a Idle stop | |
|---|---|---|----------------------------------|---|----------------------------------|---|-----------------------|---|
| rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| LDA 1250 | 0,7 bar 82,5 - 83,5 (80,5 - 85,5) | 1290-1300* | LDA 850 | 0,7 bar 84,5 - 86,5 (82,0 - 89,0) | 100 | 115,0-125,0 (112,0-128,0) =18,4-18,8 mm RW | - | - |
| | | | LDA 500 | 0 bar 59,5 - 61,5 (57,5 - 63,5) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

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8.85

F6

F6

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel - diminution difference mm (1) |
|--------------------------------------|---------------------------------|-------------------------------------|--|
| PES 4 A..RS 2638 +RSV..A8C 707-3L | 0,70 | 0 0,39 0,25 | 13,7 - 13,8 12,3 - 12,4 13,5 - 13,6 12,8 - 13,0 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 4,4 a 1

1. Edition

En

PES 4 A 95 D 320 RS 2654
Komb.-Nr. 0 400 874 236
1-2-4-3 je $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

RSV 325-1050 A 2 C 2178 R

supersedes -
company Valmet
engine 411 DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference between
control-rod travel 9 mm and control-
rod travel max. = 4,5-5,5°

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
 $(2,45-2,65)$ mm (from BDÇ) RW = 9,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1050 | 10,0+0,1 | 8,3-8,5 | 0,35(0,6) | | | |
| 325 | 5,9-6,1 | 1,8-2,4 | 0,35(0,5) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 25 | 325 | 5,5 | 1050 | 10,0-10,1 |
| | x = 5,0 | | | | | | 325 | 5,9-6,1 | 500 | 11,0-11,1 |
| | | | | | | | 430-490 = 2,0 | | 860 | 10,4-10,6 |
| ca. 47 | 9,0 | 1090-1100 | | | | | | | | |
| 2a | 4,0 | 1140-1170 | | | | | | | | |
| | 1305 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ...) | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|--|-------------------------------|---|----------------------------------|-------------------------------|--------------------------|--|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1050 | 83,0-85,0 (81,0-87,0) | 1090-1100* | 500 | 84,0-87,0 (81,5-89,5) | 100 | 190,0-200,0 - (187,0-203,0) =19,5-21,0 | | - |
| | | | 750 | 88,0-90,0 (85,5-92,5) | 325 | mm RW 18,0-24,0 (15,5-26,5) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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F8

F8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 3,3 a 1

1. Edition

En

PES 3 A 95 D 320 RS 2655
Komb.-Nr. 0 400 873 032
1-2-3 je 120° ± 0,5° (± 0,75°)

RSV 325-1150 A 2 C 2178-1 R

supersedes -
company Valmet
engine J11 D 56

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference between control-rod travel 9 mm and control-rod travel max. = 4,5-5,5°

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDÇ) RW = 9,0 mm

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1130 | 10,4+0,1 | 8,9-9,1 | 0,35(0,6) | | | |
| 325 | 6,5-6,7 | 2,2-2,8 | 0,35(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control rev/min | Control rod travel mm |
|---|--------------------|------------|--------------------------|---|---|--|-------------------|---------|-----------------------------|--------------------------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | mm | | |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 27 | 325 | 6,1 | 1130 | 10,4-10,5 |
| | x = 5,0 | | | | | | 325 | 6,5-6,7 | 500 | 11,8-11,9 |
| | | | | | | | 460-520 | = 2,0 | 915 | 11,2-11,4 |
| ca. 54 | 9,4 | 1170-1190 | | | | | | | | |
| 2a | 4,0 | 1235-1265 | | | | | | | | |
| | 1405 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|--------------------------|--|--------------|--------------------------|
| rev/min | cm ³ /1000 strokes | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1130 | 88,5-90,5 (86,5-92,5) | 1170-1190* | 500 | 94,5-96,5 (92,0-99,0) | 100 | 190,0-200,0 (187,0-203,0) = 19,5-21,0 mm RW | - | - |
| | | | | | 325 | 22,0-28,0 (19,5-30,5) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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F9

F9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 4,0 b

1. Edition

En

PES 4 A 90 D 410 RS 2666 RQV 300-1400 AOC 2006-1 L
Komb.-Nr. 0 400 874 240
Values apply to fuel-injection test tubing
1 680 750 015

supersedes
company Daimler-Benz
engine OM 364
66 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,25-2,35$
 $(2,20-2,40)$ mm (from BDC)

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1380 | 10,4+0,1 | 6,3-6,4 | 0,3(0,45) | | | |
| 300 | 7,8-8,0 | 0,6-1,0 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | Lower rated speed | | 3 Torque control | |
|--|--------------------|------------|--------------------------|---|---|---------------------------------------|-------------------|----------|------------------|-----------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 16 | 300 | 7,9 | 1380 | 10,4-10,5 |
| ca. 66 | x = 4,5 | | | | | | 100 | min.19,5 | 500 | 11,8-11,9 |
| | 9,4 | 1430-1440 | | | | | 300 | 7,8-8,0 | 900 | 11,1-11,3 |
| 2a | 4,0 | 1480-1510 | | | | | 420-480=2,0 | | | |
| | 1575 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ...) | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1380 | 63,0-64,0 (61,0-66,0) | 1430-1440* | 500 | 52,0-54,0 (49,5-56,5) | 100 | 78,0-88,0 (75,0-91,0) | 300 | 7,9 |
| | | | | | 300 | 6,0-10,0 (4,0-12,0) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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7.85

F10

F10

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 6,0 a 1

2. Edition

En

PES 6 A 90 D 410 RS 2667 RQV 300-1400 AB 1201 L

Komb.-Nr. 0 400 846 535

Values apply to fuel-injection test tubing
1 680 750 015

supersedes 12.84

company: Daimler-Benz

engine: OM 366

100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,25-2,35$
($2,20-2,40$) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1400 | 11,1+0,1 | 6,4-6,5 | 0,3(0,45) | | | |
| 300 | 8,9-9,1 | 0,9-1,5 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------------------|---------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|------------|-----------------------|---------------------------|--------------------------------------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1500 | 15,2-17,8 | - | - | - | ca. 25 | 100 300 | min. 10,5 8,9-9,1 | 300 500 750 1500 | 0,8-1,3 2,3-2,8 4,1-4,3 8,5 |
| ca. 63 | 10,1 4,0 1630 | 1440-1450 1545-1575 0-1,0 | | | | 540-680 | | | | |

Torque control travel a = 1,1 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|--|---|--|---|---|----------------------------|--|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1400 | 63,5-64,5 (61,5-66,5) | 1440-1450* | 500 900 | 51,0-54,0 (48,5-56,5) 53,5-56,5 (51,0-59,0) | 100 | 78,0-88,0 (75,0-91,0) =16,4-17,0 mm RW | 1400 500 900 1100 | 11,1+0,1 12,2+0,1 11,7+0,2 11,4+0,3 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

F11

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F11

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCL 7,4 c

1. Edition

En

PES 6 A 95 D 410 RS 2692

RSV 325-1100 A 1 C 2177 L

Komb.-Nr. 0 400 876 323

supersedes

company Schlüter

engine SDMT 112 W 6
118 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,65-2,85) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 11,6+0,1 | 10,4-10,6 | 0,35 (0,6) | | | |
| 325 | 8,4-8,6 | 2,1-2,9 | 0,35 (0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control rev/min 10 | Control rod travel mm 11 |
|---|-------------------------------|---------------------------------------|--------------------------|---|---|--|-------------------|-------------------------------|-----------------------------------|--------------------------------|
| | | | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | | |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 21 | 325 | 8,0 | 1100 | 11,6-11,7 |
| ca. 54 2a | X = 3,5 | | | | | | 100 | min. 19,5 | 500 | 12,6-12,7 |
| | 10,6 | 1140-1150 | | | | | 325 | 8,4-8,6 | 870 | 12,0-12,2 |
| | 4,0 | 1200-1230 | | | | | 535-595 | = 2,0 | | |
| | 1370 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1 | cm ³ /1000 strokes 2 | 6 Rotational-speed limit Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics rev/min 4 | cm ³ /1000 strokes 5 | Starting fuel delivery Idle | | 5 | 4a Idle stop rev/min 8 | Control rod travel mm 9 |
|--|---|--|--|---|--------------------------------|---|---|------------------------------|-------------------------------|
| | | | | | rev/min 6 | cm ³ /1000 strokes 7 | | | |
| LDA 1100 | 0,7 bar 104,0-106,0 (102,0-108,0) | 1140-1150* | LDA 700 | 0,7 bar 108,5-111,5 (106,0-114,0) | 100 | 180,0-190,0 - (177,0-193,0) =19,5-21,0 mm RW | | | |
| | | | LDA 500 | 0 bar 74,0-76,0 (72,0-78,0) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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F12

F12

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 6 A.. RS 2692 +RSV..A 1 C 2177 L | 0,70 | 0 0,26 0,13 | 12,6-12,7 11,0-11,1 11,8-11,9 11,5-11,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test of hydraulic starting interlock:

at n = 550 min⁻¹ and 0.2 bar boost pressure.
 Locking at 0,4 - 0,5 bar
 Unlocking at 0,15-0,25 bar

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,8 a 3

1. Edition

PE 6 P 100 A 720 RS 15 RQV 300-1100 PA 466
Komb.-Nr. 9 400 087 259

supersedes
company Daimler-Benz
engine: OM 355
154 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC), RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 12,1+0,1 | 10,1-10,3 | 0,35(0,6) | | | |
| 300 | 7,8-8,0 | 0,9-1,3 | 0,35(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------|--------------------------|---------------------------------------|---------------|--------------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1100 | 15,2-17,8 | - | - | - | ca. 14 | 100 | min. 7,5 | 250 | 0,5-1,4 |
| ca. 69 | 11,1 4,0 1300 | 1140-1150 1210-1240 0-1,0 | | | | | 300 | 5,9-6,1 | 400 | 2,2-2,7 |
| | | | | | | | 530-590 = 2,0 | | 800 | 5,5-6,0 |
| | | | | | | | | | 1100 | 8,9 |

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------------|-----------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1100 | 101,0-103,0 (99,0-105,0) | 1140-1150* | 450 | 86,0-89,0 (83,5-91,5) | 100 | 140,0-160,0 = 18,1-18,5 mm RW | 1100 | 12,1+0,1 |
| | | | 700 | 90,5-93,5 (88,0-96,0) | | | 900 | 12,1+0,1 |
| | | | | | | | 700 | 12,3+0,2 |
| | | | | | | | 450 | 12,7+0,1 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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F14

F14

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 c

4. Edition

En

PE 6 P 120 A 720 RS 214 RQV 425-1050 PA 438 R
Komb.-Nr. 0 401 846 409
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes 81
company: UNIC-IVECO
engine: 8215.22.520

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

| Port closing at prestroke | | mm (from BDC) | | | | |
|---------------------------|--------------------|------------------------------|------------------------------|--------------------|------------------------------|-----------------------|
| | | 2,00-2,10 (1,95-2,15) | | | | |
| Rotational speed | Control rod travel | Fuel delivery | Difference | Control rod travel | Fuel delivery | Spring pre-tensioning |
| rev/min | mm | cm ³ /100 strokes | cm ³ /100 strokes | mm | cm ³ /100 strokes | mm |
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1050 | 10,1+0,1 | 16,7-16,9 | 0,5(0,9) | | | |
| 425 | 6,2-6,4 | 2,5-3,1 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--------------------|---------------------------------|---------------------------------------|---------|--------------------|---------------------------------------|---------|--------------------|-----------------------|-------------------------------|
| Degree of deflection of control lever | rev/min | Control rod travel | Degree of deflection of control lever | rev/min | Control rod travel | Degree of deflection of control lever | rev/min | Control rod travel | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1050 | 15,2-17,8 | - | - | - | ca. 12 | 100 | min.7,8 | 425 | 1,2-1,4 |
| ca. 58 | 9,1 4,0 1300 | 1090-1100 1190-1220 0-1,0 | | | | | 425 | 6,2-6,4 | 600 900 1050 | 3,8-4,6 6,4-6,7 7,6-7,8 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery | | Rotational-speed limitation | | Fuel delivery characteristics | | Starting fuel delivery | | Torque-control travel | |
|--------------------|-------------------------------|-----------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------|-------------------------------|-----------------------|----|
| Control rod stop | | intermediate speed | | high idle speed | | idle switching point | | Control rod travel | |
| rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1050 | 167,0-169,0 (164,0-172,0) | 1090-1100* | - | - | - | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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F15

F45

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 c 2

1. Edition

En

PE 6 P 120 A 720 RS 214 RQV 425-1100 PA 438 R

Komb.-Nr. 0 401 846 434

supersedes
company UNIC-IVECO
engine: 8215.02.542
165,5 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\begin{matrix} 1,95-2,15 \\ (2,00-2,15) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1050 | 10,2+0,1 | 19,4-19,8 | 0,5(0,9) | | | |
| 425 | 6,0-6,2 | 2,4-2,8 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-------------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm ④ | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm ③ | rev/min 10 | mm 11 |
| max. | 1100 | 15,2-17,8 | - | - | - | ca. 12 | 100 425 | min.7,6 6,0-6,2 | 425 800 1100 | 1,3-1,4 4,1-4,5 7,5 |
| ca. 58 | 9,2 4,0 1350 | 1140-1150 1195-1225 0 - 1,0 | | | | ③a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery Idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|--|----------------------------------|-------------------------------------|--|------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5b | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1100 | 194,0-198,0 (191,0-201,0) | 1140-1150* | | | 100 425 | 19-21 mm RW 24,0-28,0 | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

F16

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F16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 10,0 a

1. Edition

En

PE 5 P 100 A 720 RS 265 RSV 350-1000 P1/14
Komb.-Nr. 9 400 087 269
1-2-4-5-3 je 72° ± 0,5° (± 0,75°)

supersedes -
company Daimler-Benz
engine OM 355-5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC; RW = 9,0 - 12,0 mm)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1900 | 12,4+0,1 | 10,7 - 10,9 | 0,35 (0,6) | | | |
| 350 | 7,4-7,6 | 1,4 - 1,9 | 0,3 (0,5) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|-----------------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 24 | 350 | 7,0 | - | - |
| | X = | | | | | | 100 | min. 19,0 | | |
| ca. 53 | 11,4 | 1040-1050 | | | | | 350 | 7,4-7,6 | | |
| 2a | 4,0 | 1095-1125 | | | | | 520 - 580 = 2,0 | | | |
| | 100 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|-----------------------|--------------------------|-------------------------------|----------------------------------|-------------------------------------|-----------------------------|-------------------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | Note: changed to ...) | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 1000 | 1040-1050* | 500 | 89,0 - 93,0 (87,5 - 95,5) | 100 | 140,0-160,0 = 18,2-18,5 mm RW | - | - | | |
| | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

7.85

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Testoil-ISO 4113

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 d 1

2. Edition

En

PE 6 P 110 A 320 RS 272 RQV 250-1250 PA 235-2 R
Komb.-Nr.0 401 846 298

supersedes 7.84
company: Volvo
engine: TD 70 E

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,1 \\ (2,95-3,15) \end{matrix}$ mm (from BDC), RW=9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 8,7-8,8 | 9,2-9,4 | 0,4(0,8) | | | 2,5 [±] 0,1 |
| 250 | 6,7-6,9 | 2,2-2,6 | 0,3(0,6) | | | (2,2-2,9) |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | |
|--|--|--|--|--------------|-------------------------------|--|--------------------|-------------------------------|-------------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1250 | 15,2-17,8 | - | - | - | ca.12 | 100 | min.8,2 | 200 | 0,3-0,8 |
| ca. 44 | 7,7 4,0 1450 | 1290-1300 1340-1370 0-1,0 | | | | | 250 350-410=2,0 | 6,7-6,9 | 550 900 250 | 2,6-3,2 4,6-5,0 7,5 |

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics high idle speed ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|-------------------------------------|--|--|------------------------------------|---|---|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 700 | 0,7 bar 92,0-94,0 (89,0-97,0) | 1290-1300* | LDA 700 | 0 bar 70,5-73,5 (67,5-76,5) | 100 | 140,0-180,0 (136,0-184,0) =20,0-21,0 mm RW | - | - |
| | | | | | 250 | 22,0-26,0 (19,5-28,5) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

VOL 7,0 d 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P.. RS 272 +RQV.. PA 235-2 R | 0,70 | 0 0,31 0,23 | 8,7-8,8 7,8-7,9 8,5-8,6 7,9-8,1 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

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WPP 001/4 DAF 11,6 f 1

1. Edition

En

PE 6 P 110 A 320 RS 281/Z
Komb.-Nr. 0 401 876 199/Z

RSV 250-1100 P 5/390 R

supersedes...

company: DAF

engine: DKTD 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,0+0,1 | 13,7-14,0 | 0,4 (0,75) | | | |
| 250 | 6,6-6,8 | 0,7-1,1 | 0,4 (0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | | | Intermediate rated speed 4 5 6 | | | 4 Control-lever deflection in degrees rev/min 7 8 9 | | | 3 Torque control rev/min Control rod travel 10 11 | |
|---|---------------------------------------|-----------|-----------------------------------|---|---|---|-------------------------------|---------------|--|-----------|
| Control rod travel mm 2 | Control rod travel mm rev/min 3 | | | | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 | |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 18 | 250 | 6,2 | 400 | 12,2-12,3 |
| | X = | | | | | | 250 | 6,6-6,8 | 300 | 12,4-12,9 |
| ca. 51 | 11,0 | 1140-1150 | | | | 350-410 | = 2,0 | | | |
| 2a | 4,0 | 1210-1240 | | | | | | | | |
| | 1350 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1 | | 6 Rotational-speed limit Note: changed to ... rev/min 3 | | 3a Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle rev/min 6 | | 5 4a idle stop rev/min Control rod travel mm 8 9 | |
|--|------------------------------|---|-----|--|-----|--|---|--|-----|
| cm ³ /1000 strokes 2 | | | | cm ³ /1000 strokes 5 | | cm ³ /1000 strokes 7 | | | |
| LDA | 0,7 bar | 1140-1150* | LDA | 0 bar | 100 | 245,0-285,0 | 0 | 250 | 6,7 |
| 850 | 136,5-139,5 (134,0-142,0) | | 600 | 127,5-130,5 (124,0-134,0) | | RW = 19,5- 21,0 mm | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 281/Z + RSV..P 5/390 R | 0,70 | 0,30 0 | 12,0-12,1 11,8-11,9 11,4-11,5 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 281/Z RQ 250/1100 PA 196 R
Komb.-Nr. 0 401 846 342/Z

supersedes -
company: DAF
engine: DKTD 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC) bei RW = 9,0 - 12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,0+0,1 | 13,7 - 14,0 | 0,4 (0,75) | | | |
| 600 | 11,4+0,1 | 12,8 - 13,1 | - | | | |
| 250 | 6,6-6,8 | 0,7 - 1,1 | 0,4 (0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | | ① | | Full-load speed regulation Setting point rev/min 3 | | Control rod travel mm 4 | | Test specifications rev/min 5 | | ④ | | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | | Test specifications rev/min 9 | | Control rod travel mm 10 | | ⑤ | | Torque control rev/min 11 | | Control rod travel mm 12 | | ③ | |
|---|-----------|-------------------------------|------|------|-----------|---|-----|-------------------------------|----------|-------------------------------------|---|---|--|--|--|-------------------------------|--|-------------------------------------|--|--------------------------------|--|---|--|---------------------------------|--|--------------------------------|--|---|--|
| 700 | 15,6-16,4 | 700 | 16,0 | 11,0 | 1145-1160 | 250 | 6,7 | 100 | min. 7,8 | - | - | | | | | | | | | | | | | | | | | | |
| | | | | 4,0 | 1220-1250 | | | 250 | 6,6-6,8 | | | | | | | | | | | | | | | | | | | | |
| | | | | 1350 | max. 1,0 | | | 460-500 | =2,0 | | | | | | | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | | ② | | Control rod stop rev/min 3 | | ③a | | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | | ③b | | Starting fuel delivery idle speed rev/min 6 | | cm ³ /1000 strokes/mm 7 | | ⑥ | |
|---|----------------------------------|-------------------------------------|--|---|--|----------------------------------|--|----|--|---|----------------------------------|-------------------------------------|--|----|--|--|------------------------|---------------------------------------|--|---|--|
| LDA | 0,7 bar | | | | | | | | | LDA | 0 bar | | | | | 100 | 245,0 - 285,0 | | | | |
| 850 | 136,5 - 139,5 (134,0 - 142,0) | | | | | | | | | 600 | 127,5 - 130,5 (124,0 - 133,0) | | | | | | RW = 19,5 - 21,0 mm | | | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 f 2

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|--------------------------------------|---------------------------------|-------------------------------------|---|
| PE6P .. RS 281/Z + RQ .. PA 196 R | 0,70 | 0,30 0 | 12,0 - 12,1 11,8 - 11,9 11,4 - 11,5 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40
WPP 001/4 KHD 40,5 c 6

1. Edition

En

PE 3 P 130 A 920/5 RS 293-1 RSUV 300-750 P 9 A 350

1-6 - 4- 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345 ° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

KHD

company

BA 16 M 816

encl.

Komb.-Nr. 0 401 878 116

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,0-2,1}{(1,95-2,15)}$ mm (from BDC) RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 750 | 13,5+0,1 | 35,8-36,1 (35,5-36,5) | 0,6 (1,0) | | | |
| 300 | 6,1-6,3 | 2,0-2,6 (1,7-2,9) | 1,0 (1,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Loose | 800 | 0,3-1,0 | - | - | - | ca. 25 | 300 | 5,7 | 750 | 13,5-13,6 |
| | X = 4,0 | | | | | | 300 | 6,1-6,3 | 280 | 14,7-15,3 |
| | | | | | | | 320-380 | = 2,0 | 450 | 13,5-13,6 |
| ca.62 | 12,5 | 790-800 | | | | | | | | |
| 2a | 4,0 | 810-840 | | | | | | | | |
| | 975 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 | | 4a Idle stop | |
|---------------------------------|-------------------------------|-----------------------------|---------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|---------|---------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to .) | | | | | | | | | Control rod travel mm |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | mm |
| 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 8 | 9 | |
| Test specifications on request! | | 790-800 * | - | - | - | - | - | - | - | - | - |
| Pump operates in tandem. | | | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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Testoil ISO 4113

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 7

1. Edition

En

PE 8 P 120 A 920/5 RS 293-1 RSUV 300-1000 P 0 A 352
1-6-4-5-8-3-2-7

0-75-90-120-210-225-315-345° + 0,5° (+ 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes KHD

company BA 16 M 816

engine

Komb.-Nr. 0 401 878 115

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,0-2,1} (1,95-2,15) mm (from BDC) RW = 9,0 - 12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 750 | 13,5+0,1 | 35,8-36,1 (35,5-36,5) | 0,6 (1,0) | | | |
| 300 | 6,1-6,3 | 2,0-2,6 (1,7-2,9) | 1,0 (1,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|--------------------|------------|--------------------------|---|---|--|-------------------|-----------------------|------------------|-----------------------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 2 | 3 | | | | | 8 | 9 | 10 | 11 | |
| loose | 800 | 0,3-1,0 | - | - | - | ca.22 | 300 | 5,7 | 1000 | 13,5-13,6 |
| | | x = 2,0 | | | | | 300 | 6,1-6,3 | 280 | 14,7-15,3 |
| | | | | | | | 325-385=2,0 | | 450 | 13,5-13,6 |
| ca.66 | 12,5 | 1040-1050 | | | | | | | | |
| 2a | 4,0 | 1060-1090 | | | | | | | | |
| | 1225 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle 5 | | 4a Idle stop | |
|--|-------------------------------|---|---------|----------------------------------|---------|-------------------------------|---------|-----------------------|--|
| rev/min | cm ³ /1000 strokes | 3 | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm | |
| 1 | 2 | | 4 | 5 | 6 | 7 | 8 | 9 | |
| | | 1040-1050* | - | - | - | - | - | - | |
| Test specifications on request! | | | | | | | | | |
| Pump operates in tandem. | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

6.85

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Test Specifications Fuel Injection Pumps **1A** and Governors

40

WPP 001/4 KHD 40,5 e

1. Edition

En

PE 8 P 130 A 920/5 RS 293-2 RSUV 300-600 P 8 A 322 R
 1- 6- 4- 5 - 8 - 3 - 2 - 7
 0-75-90-120-210-225-315-345 ° ± 0,5 ° (± 0,75 °)
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes™
 company KHD
 BA 16 M 816
 engine
 Komb.-Nr. 0 401 878 118

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDCRW = 9,0-12,0 mm)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 600 | 13,5+0,1 | 35,8-36,1 (35,4-36,5) | 0,6 (1,0) | | | |
| 300 | 6,1-6,3 | 2,0-2,6 (1,7-2,9) | 1,0 (1,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 30 | 300 | 5,7 | 600 | 13,5-13,6 |
| | X = 4,0 | | | | | | 300 | 6,1-6,3 | 220 | 14,7-15,3 |
| | | | | | | | 310-370 | = 2,0 | 350 | 13,5-13,6 |
| ca. 65 | 12,5 | 640-650 | | | | | | | | |
| 2a | 4,0 | 655-685 | | | | | | | | |
| | 820 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 Idle stop | |
|---------------------------------|-------------------------------|--------------------------|-------------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|-------------|-----------------------|
| Test oil temp. 40°C (104°F) | Note: changed to ... | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | mm |
| Test specifications on request! | 640-650 * | - | - | - | - | - | - | - | - |
| Pump operates in tandem. | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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Testoil ISO 4113

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 e 1

1. Edition

En

PE 8 P 130 A 920/5 RS 293-2 RSUV 300-750 P 9 A 322 R

1-6-4-5-8-3-2-7

0-75-90-120-210-225-315-345 ° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

company KHD

BA 16 M 816

engine

Komb.-Nr. 0 401 878 120

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,0-2,1} (1,95-2,15) mm (from BDC) RW = 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 750 | 13,5+0,1 | 35,8-36,1 (35,5-36,5) | 0,6 (1,0) | | | |
| 300 | 6,1-6,3 | 2,0-2,6 (1,7-2,9) | 1,0 (1,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|---------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 X = 4,0 | 0,3-1,0 | - | - | - | ca.-21 | 300 | 6,2 | 750 | 13,5-13,6 |
| | | | | | | | 300 | 6,1-6,3 | 280 | 14,7-15,3 |
| | | | | | | | 300-360 = 2,0 | | 450 | 13,5-13,6 |
| ca.54 | 12,5 4,0 | 790-800 805-835 | | | | | | | | |
| ②a | 970 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat | | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ④a Idle stop | |
|-----------------------------|---------------------------------|------------------------------------|---|----------------------------------|------------------------------------|-----------------------------|------------------------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | rev/min 1 | cm ³ /1000 strokes 2 | Note: changed to ... rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| | Test specifications on request! | | 790-800 * | - | - | - | - | - | - |
| | Pump operates in tandem. | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 0C1/4 KHD 40,5 e 2

1. Edition

En

PE 8 P 130 A 920/5 RS 293-2 RSUV 300-1000 POA 348
1- 6- 4- 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345 ° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes -

company KHD

BA 16 M 816

engine

Komb.-Nr. 0 401 878 119

Test ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 750 | 13,5+0,1 | 35,8-36,1 (35,5-36,5) | 0,6 (1,0) | | | |
| 300 | 6,1-6,3 | 2,0-2,6 (1,7-2,9) | 1,0 (1,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | | | | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 18 | 300 | 5,9 | 1000 | 13,5-13,6 |
| | X = 2,0 | | | | | | 300 | 6,3-6,5 | 280 | 14,7-15,3 |
| ca. 66 | 12,5 | 1040-1050 | | | | | 325-385 | = 2,0 | 450 | 13,5-13,6 |
| 2a | 4,0 | 1065-1095 | | | | | | | | |
| | 1230 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 4a Idle stop | |
|---------------------------------|----------------------|--------------------------|-------------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|----------------|-----------------------|
| Test oil temp. 40°C (104°F) | Note: changed to ... | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| Test specifications on request! | 1040-1050* | - | - | - | - | - | - | - | - |
| Pump operates in tandem. | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 10,1 a 1
2. Edition

PES 6 P 110 A 720 RS 370 RSV 400 - 1050 P 0/496
Komb.-Nr. 9 400 231 107

superseded 10.83
company John Deere
6619 A
engine 205 kW

Use overflow valve 1 457 413 010

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing cylinder 1 = 15°
after port closing.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,75-2,85 mm (from BDC) RW 9,0-12,0 mm
(2,70-2,90)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1050 | 12,3+0,1 | 17,4-17,6 | 0,4(0,75) | | | |
| 400 | 5,9-6,1 | 1,3 - 1,9 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control rev/min 10 | Control rod travel mm 11 |
|---|--------------------|-----------------|--------------------------|---|---|--|-------------------|-------------------------------|-----------------------------------|--------------------------------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | | |
| loose | 800 | 0,3-1,0 | | | | ca. 24 | 400 | 5,5 | 1050 | 12,3-12,4 |
| ca. 44 2a | 11,3 | 1090-1100 | | | | | 100 | min. 19,0 | 700 | 13,4-13,8 |
| | 4,0 | 1155-1185 | | | | | 400 | 5,9-6,1 | | |
| | 1280 | 0,3 - 1,7 | | | | | 550-610 650 | = 2,0 max. 1,0 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|---|--|----------------------------------|---|-----------------------------|--|--------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1050 | 0,9 bar 174,0-176,0 (171,0-179,0) | 1090-1100* | LDA 700 | 0,9 bar 198,0-204,0 (195,0-207,0) | 100 | 170,0-200,0 | 400 | 6,0 |
| | | | LDA 500 | 0 bar 125,0-131,0 (123,0-133,0) | High 1150 | idle speed 55,0-65,0 (53,0-67,0) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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D. Adjustment Test for Manifold Pressure Compensator

DEE 10,1 a 1-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel - diminution difference |
|---------------------------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 6P..RS 370 + RSV..PO/496 | 0,9 | 0 0,53 0,24 | 13,6-13,7 10,5-10,6 12,9-13,0 11,1-11,3 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,8 0

1. Edition

En

PE 6 P 110 A 720 RS 371 RQ 300/1050 PA 419-1

Komb.-Nr. 9 400 087 318

supersedes
company: Daimler-Benz
engine: OM 355 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1050 | 11,5+0,1 | 16,1-16,3 | 0,4(0,75) | | | |
| 300 | 5,9-6,1 | 1,6-2,1 | 0,35(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation ④ | | | | Idle speed regulation ⑤ | | | | Torque control ③ | |
|-----------------------------------|--------------------------|------------------------------|--------------------------|--------------------------|--|--------------------------|--------------------------|---------|-----------------------------------|------------------|--------------------------|
| rev/min | Control rod travel mm | Setting point rev/min | Control rod travel mm | Control rod travel mm | Test specifications rev/min | Setting point rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 600 | 15,6-16,4 | 600 | 16,0 | 10,5 | 1095-1110 4,0 1150-1180 1270 0-1,0 | 300 | 6,0 | 100 | min.7,6 5,9-6,1 440-500=2,0 | - | - |

Torque-control travel on flyweight assembly dimension a = mmSpeed regulation: At 1095-1110 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|--------------------------------|---------------------|----------------------------------|--------------------------------|--|--|
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | Control rod travel cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1050 | 161,0-163,0 (159,0-165,0) | 500 | 500 | 152,0-156,0 (149,0-159,0) | 100 | 144,0-160,0 =12,7-13,7 mm RW |

Checking values in brackets

8.85

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Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 372/W RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 411/W

supersedes -
DAF
company: DKT 1160 206 kW

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC) bei RW = 9,0 - 12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 850 | 12,8+0,1 | 15,3 - 15,6 | 0,4(0,75) | | | |
| 600 | 11,4-0,1 | 12,8 - 13,1 | - | | | |
| 250 | 7,0-7,2 | 1,0 - 1,4 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | | | | |
|---------------------------------|--------------------------|----------------------------|--------------------------|--------------------------|-----------|-----------------------|--------------------------|---------------|--------------------------|---------------------|--------------------------|---------|--------------------------|---------|--------------------------|
| ① | | Setting point | | Test specifications | | ④ | | Setting point | | Test specifications | | ⑤ | | ③ | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 11 | 12 | 11 | 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 11,8 | 1145-1160 | 250 | 7,1 | 100 | min. 8,0 | - | - | - | - | - | - |
| | | | | 4,0 | 1230-1260 | | | 250 | 7,0-7,2 | | | | | | |
| | | | | 1400 | max. 1,0 | | | 470-510 | =2,0 | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|----------------------------------|------------------|-------------------------------|----------------------------------|--------------------------------------|----------------------------------|
| ② | | ③a | ③b | | ⑥ | |
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| LDA | 0,7 bar | - | LDA | 0 bar | 100 | 245,0 - 285,0 |
| 850 | 152,5 - 155,5 (150,0 - 158,0) | | 600 | 127,5 - 130,5 (124,5 - 134,5) | | RW = 19,5 - 21,0 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 2

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference mm (1) |
|------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | |
| PE6P110..RS372/W + RQ..PA 417 R | 0,70 | 0,35 | 12,8 - 12,9 |
| | | 0 | 12,5 - 12,6 |
| | | | 11,4 - 11,5 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 372/X
Komb.-Nr. 0 401 846 411/X

RQ 250/1100 PA 417 R

supersedes 11.81
company: DAF
engine: DK 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 10,6+0,1 | 10,6-10,8 | 0,4(0,75) | | | |
| 250 | 6,6-6,8 | 0,7-1,1 | 0,4(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------------|----------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Test specifications rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 9,6 4,0 1350 | 1160-1175 1220-1250 max. 1,0 | 250 | 6,7 | 100 250 460-500 = 2,0 | min.7,8 6,6-6,8 | - | - |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1160-1175 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|-------------------------------------|------------------|-------------------------------|-------------------------------------|--------------------------------------|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/ mm 7 |
| 850 | 105,5-107,5 (102,5-110,5) | - | - | - | 100 | 245,0-285,0 bis RW = 19,5- 21,0 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 ± 4

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P ..RS 372/X with ..PA 417 R | 0,7 | 0,35 | 10,6 - 10,7 |
| | | | 10,4 - 10,5 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 372/Y RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 411/Y

supersedes 11.81
company: DAF
engine: DKA

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 11,1+0,1 | 11,5-11,7 | 0,4 (0,75) | | | |
| 250 | 6,6-6,8 | 0,7-1,1 | 0,4 (0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|----------------------------|-------------------------------|-------------------------------|------------------------------------|-----------------------|-------------------------------|-----------------------------|--------------------------------|----------------|--------------------------------|
| ① | | Setting point | | Test specifications | | Setting point | | Test specifications | | ③ | |
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 10,1 4,0 1350 | 1150-1165 1220-1250 max. 1,0 | 250 | 6,7 | 100 250 460-500 = 2,0 | min. 7,8 6,6-6,8 | - | - |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1150-1165 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|-------------------------------------|------------------|-------------------------------|-------------------------------------|--------------------------------------|---|
| ② | | ③a | ③b | | ⑥ | |
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes / mm Control rod travel 7 |
| 850 | 114,5-116,5 (111,5-119,5) | - | - | - | 100 | 245,0-285,0 bei RW = 19,5- 21,5 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 5 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 372/Y + RQ..PA 417 R | 0,70 | 0,35 | 11,6 - 11,8 |
| | | | 11,4 - 11,6 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 i 14
1. Edition

En

PE 6 P 110 A 320 RS 372/Z RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 411/Z

supersedes -
company: DAF
engine: DKT 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) bei RW = 9,0 - 12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 850 | 12,3+0,1 | 14,3 - 14,6 | 0,4 (0,75) | | | |
| 600 | 11,4+0,1 | 12,8 - 13,1 | - | | | |
| 250 | 6,6-6,8 | 0,7 - 1,1 | 0,4 (0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|--------------------------|----------------------------|--------------------------|--------------------------|-----------|-----------------------|--------------------------|--------------------------|---------|----------------|--------------------------|
| rev/min | Control rod travel mm | Setting point | Test specifications | | | Setting point | Test specifications | | | rev/min | Control rod travel mm |
| 1 | 2 | 3 | Control rod travel mm | Control rod travel mm | rev/min | 7 | Control rod travel mm | Control rod travel mm | rev/min | 11 | 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 11,3 | 1145-1160 | 250 | 6,7 | 100 min. 7,8 | - | - | - |
| | | | | 4,0 | 1220-1250 | | | 250 6,6-6,8 | | | |
| | | | | 1350 max. 1,0 | | | | 460-500 =2,0 | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|----------------------------------|------------------|-------------------------------|----------------------------------|--------------------------------------|----------------------------------|
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| LDA | 0,7 bar | - | LDA | 0 bar | 100 | 245 - 285 |
| 850 | 142,5 - 145,5 (140,0 - 148,0) | | 600 | 127,5 - 130,5 (124,0 - 134,0) | | RW = 19,5 - 21,0 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 14

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE6P .. RS 372/Z + RQ .. PA 417 R | 0,70 | 0,30 | 12,3 - 12,4 |
| | | 0,26 | 12,0 - 12,1 |
| | | 0 | 11,6 - 11,8 |
| | | 0 | 11,4 - 11,5 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 110 A 320 RS 372-1
Komb.-Nr. 0 401 846 463

RQ 250/1100 PA 417-1
RQ 250/1100 PA 417

supersedes 5.84
company: DAF
engine: DKTD 1160
191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,0+0,1 | 13,7-14,0 | 0,4(0,75) | | | |
| 250 | 6,6-6,8 | 0,7-1,1 | 0,45(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ④ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|-----------------------------------|--|-------------------------------|-----------------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 11,0 4,0 1350 | 1145-1160 1220-1250 0 - 1,0 | 250 | 6,7 | 100 250 460-500 | min. 7,8 5,6-6,8 = 2,0 | 850 1100 | 12,0-12,1 11,9-12,1 |

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|---|---------------------|----------------------------------|---------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | Control rod travel cm ³ /1000 strokes/mm 7 |
| LDA 850 | 0,7 bar 136,5-139,5 (134,0-142,0) | - | LDA 600 | 0 bar 127,5-130,5 (125,0-133,0) | 100 | 245,0-285,0 (241,0-289,0) = 19,5-21,0 mm RW |

Checking values in brackets

06.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 8 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS372-1 +..PA417-1 oder ..PA 417 | 0,70 | 0 0,30 0,28 | 12,0-12,1 11,5-11,6 11,8-11,9 11,5-11,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P120 A 320 RS 372-1/Y RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 473/Y

supersedes 10.82
company DAF
engine: DKX 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 11,4+0,1 | 20,5-20,9 | 0,5 (0,90) | | | |
| 600 | 10,0-10,1 | 13,9-14,3 | - | | | |
| 250 | 6,2-6,4 | 1,1-1,5 | 0,8 (0,95) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|-------------------------------|-------------------------------|--|------------------------------------|-------------------------------|-------------------------------|--|--------------------------------|----------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Test specifications Control rod travel mm 5 | rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Test specifications Control rod travel mm 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 10,4 4,0 1350 | 1135-1150 1200-1230 max. 1,0 | 250 | 6,3 | 100 250 440-480 = 2,0 | min. 7,4 6,2-6,4 | - | - |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1135-1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|---|------------------|-------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 850 | 0,7 bar 205,0-209,0 (202,0-212,0) | - | LDA 600 | 0 bar 139,0-143,0 (135,0-147,0) | 100 | 320,0-360,0 RW = 19,5 - 21,0 mm |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i7

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|-----------------------------------|---------------------------------|-------------------------------------|---|
| PE 6P..RS 372/Y + RQ..PA 417 R | 0,70 | 0,37 0,33 0 | 11,4-11,5 11,0-11,1 10,4-10,8 10,0-10,1 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384/Y RQ 225/1000 PA 442 R
Komb.-Nr. 0 401 846 410/Y

supersedes 8.80
company DAF
engine: DKDL 1160 V

Port closing difference
= 0,9-12,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,20-3,30}
(3,15-3,35) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 625 | 11,2+0,1 | 11,0-11,3 | 0,3(0,60) | | | |
| 225 | 7,4-7,6 | 1,5-1,7 | 0,3(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | | | Idle speed regulation Setting point rev/min 7 | | | | Torque control rev/min 11 | |
|---|-------------------------------|---|-------------------------------|-------------------------------|-------------------------------|--|--------------------------------|-------------|---------|---------------------------------|-----------|
| Control rod travel mm 2 | Control rod travel mm 4 | Control rod travel mm 5 | Control rod travel mm 6 | Control rod travel mm 8 | Control rod travel mm 9 | Control rod travel mm 10 | Control rod travel mm 12 | | | | |
| 550 | 15,6-16,4 | 550 | 16,0 | 9,4 | 1050-1065 | 225 | 7,5 | 100 | min.8,0 | 625 | 11,2-11,3 |
| | | | | 4,0 | 1085-1115 | | | 225 | 7,4-7,6 | 1000 | 10,4-10,6 |
| | | | | 1200 | max. 1,0 | | | 330-370=2,0 | | | |

Torque-control travel on flyweight assembly dimension a = 0,40 mm Speed regulation: At 1050-1065 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|---|--------------------------------|----------------------------------|--------------------------------|---|--------------------------------|--|----------------------------------|
| cm ³ /-1000 strokes 2 | Control rod travel mm 3a | Control rod travel mm 3b | Control rod travel mm 3c | Control rod travel mm 4a | Control rod travel mm 4b | Control rod travel mm 6a | Control rod travel mm 6b |
| 625 | 110,0-113,0 (108,5-114,5) | 625 | | 1000 | 100,0-104,0 (98,0-106,0) | 100 | 170,0-210,0 RW = 19,5-21,0 mm |

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384/Y RQ 300/1100 PA 517
Komb.-Nr. 0 401 846 438/Y

supersedes 8.80
company: DAF
engine: DKL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,20-3,30 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 600 | 11,5+0,1 | 11,0-11,3 | 0,3 (0,60) | | | |
| 1050 | 10,8+0,2 | 10,7-11,2 | - | | | |
| 225 | 7,2-7,4 | 1,0-1,4 | 0,3 (0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ① | | | | Torque control ③ | |
|-----------------------------------|--------------|---|-------------------------------|-------------------------------------|-------------------------------|--|--------------------------------|--------------------------------------|--|--------------------------------|--|
| Control rod travel mm 2 | rev/min 1 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Control rod travel mm 8 | Control rod travel mm 9 | Control rod travel mm 10 | Test specifications rev/min 10 | Control rod travel mm 11 | Control rod travel mm 12 | |
| 15,6-16,4 | 550 | 16,0 | 9,8 4,0 1300 | 1140-1155 1170-1200 max. 1,0 | 7,3 | 100 225 325-365=2,0 | min.7,5 7,2-7,4 | 600 800 855 1050 | 11,5-11,6 11,2-11,4 10,9-11,2 10,8-11,0 | | |

Torque-control travel on flyweight assembly dimension a = 0,25 mm Speed regulation: At 1140-1155 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery idle speed ⑥ | |
|---|-------------------------------------|---------------------|----------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| 600 | 110,0-113,0 (108,5-114,5) | 600 | 1050 | 106,5-111,5 (105,0-113,0) | 100 | 195,0-235,0 RW = 19,5- 21,0 mm |

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 110 A 320 RS 407-1 RQ 275/1000 PA 641-1
Komb.-Nr. 0 401 846 474

supersedes 5.84
company DAF
engine: DKCL 1160
155 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) = RW 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 600 | 12,3+0,1 | 13,9-14,1 | 0,4(0,75) | | | |
| 275 | 7,0-7,2 | 0,9 -1,4 | 0,45(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ⑤ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|-----------------------------------|--|-------------------------------|-----------------------|--------------------------------|---------------------------|--|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 600 | 15,6-16,4 | 600 | 16,0 | 10,1 4,0 1300 | 1045-1060 1105-1135 0 - 1,0 | 275 | 7,1 | 100 275 335-375 | min. 8,6 7,0-7,2 = 2,5 | 600 1000 740 875 | 12,5+0,1 11,1+0,2 12,1+0,2 11,4+0,3 |

Torque-control travel on flyweight assembly dimension a = 0,6 mm Speed regulation: At 1045-1060 min¹ 1 mm: less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|---|---------------------|----------------------------------|---|--|---|
| rev/min 1 | cm ³ -1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ -1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm Control rod travel 7 |
| LDA 600 | 0,7 bar 139,0-142,0 (136,5-144,5) | - | LDA 1000 | 0,7 bar 114,5-119,5 (111,5-122,5) | 100 | 245,0-285,0 (241,0-289,0) = 19,5-21,0 mm RW |
| | | | LDA 600 | 0 bar 136,5-139,5 (134,0-142,0) | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n 4

- 2-

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|--------------------------------------|---------------------------------|-------------------------------------|---|
| PE 6 P.. RS 407-1 + RQ.. PA 641-1 | 0,50 | 0 0,275 | 12,3-12,4 12,1-12,3 12,2-12,3 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 ALO 13,8 a

2. Edition

En

PES 6 P 120 A 320 RS 410 ROV 400-1050 PA 496 K
Komb.-Nr. 0 402 046 201

supersedes 3.84
company: Allis Chalmers
engine: 613.8 I
355 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2.75-2.95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1050 | 11,7+0,1 | 23,3-23,5 | 0,4 | | | |
| 400 | 5,7-5,9 | 2,4-3,0 | 0,4 | | | |

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------------------|-----------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|-----------------------|-----------------------------|-----------------------|----|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 61 | 1050 | 15,2-17,8 | - | - | - | ca. 17,5 | 100 | min. 7,5 | - | - |
| ca. 59 | 10,7 4,0 1270 | 1090-1100 1205-1235 0 - 1,7 | | | | | 400 465-525 600 | 5,5-5,7 =2,0 max. 1,0 | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1050 | 233,0-235,0 | 1090-1100* | 800 | 212,0-216,0 | 100 | 140,0-180,0 | 1050 | 11,7 |
| | | | | | | | 800 | 11,2+0,3 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

BOSCH

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 9,8 a 3
2. Edition

PES 6 P 120 A 320 RS 419 RQV 275-1100 PA 495-5
Komb.-Nr. 0 402 046 300

superseded by 06.84
company: RVI
engine: MIDR 062045
191 kW

Calibrating nozzle-and holder assembly 0 688 901 019
Test-pressure line 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC) Port closing mark $10,5^\circ$ after port closing cylinder 1
(2,75-2,95)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 9,7-9,8 | 16,4 - 16,6 | 0,5 (0,9) | | | |
| 275 | 4,9-5,1 | 1,7 - 2,3 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | | Intermediate rated speed | | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------|-----------------------|----------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|-------------------|-----------------------|---------|-----------------------|--|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Control rod travel rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm | |
| 1 | 2 | 3 | 3a | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
| max. | 1150 | 15,2 - 17,8 | | - | - | - | ca. 9 | 200 | min. 5,3 | 250 | 1,0-1,2 | |
| ca. 64 | 8,7 | 1155-1165 | | | | | | 275 | 3,6-3,8 | 450 | 3,4-3,8 | |
| | 4,0 | 1215-1245 | | | | | | | | 850 | 6,1-6,3 | |
| | 1350 | 0 - 1,0 | | | | | 285-400 | | | 1100 | 8,1 | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control | |
|---|---|---|--|---|--|-------------------------------|----------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1100 | 0,7 bar 164,0-166,0 (161,0-169,0) | 1155-1165 * | LDA 700 | 0,7 bar 152,0-158,0 (149,0-161,0) | 100 | 140,0-160,0 (136,0-164,0) | - | - |
| | | | LDA 500 | 0 bar 100,0-102,0 (97,0-105,0) | 275 | 3,6-3,8mm RW | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.
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D. Adjustment Test for Manifold Pressure Compensator

RVI 9,8 a 3

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel - diminution difference |
|-----------------------------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 6P RS 419 + RQV.. PA 495-5 | 0,70 | 0 0,23 0,20 | 9,7-9,8 8,5-8,6 9,3-9,4 8,7-8,9 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 9,5a1

2. Edition

En

Testoil-ISO 4113

PES 5 P 110 A 820 LS 434 RQV 300-1100 PA 594

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Komb.-Nr. 0 402 045 021

superse 81

company Daimler-Benz

engine: OM 409

141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0 - 3,1 \\ (2,95-3,15) \end{matrix}$ mm (from BDC) cyl. 5

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 10,8+0,1 | 12,20-12,40 | 0,4(0,8) | | | |
| 300 | 7,0-7,2 | 1,00- 1,60 | 0,4(0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|--|---------------------------------------|---------|--------------------------|---------------------------------------|------------|--------------------------|---------------------------|--------------------------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. ca. 64 | 1140 9,8 4,0 1300 | 15,2-17,8 1140-1150 1175-1205 0 - 1 | - | - | - | ca. 34 | 100 300 | min.8,5 7,0-7,2 | 250 550 800 1100 | 3,0-1,3 4,0-4,3 5,3-5,7 7,3 |
| | | | | | | 320-435 | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1100 | 122,0-124,0 (119,0-127,0) | 1140-1150 * | - | - | 100 | 140,0-160,0 (136,0-164,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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H3

H3

①

Test Specifications

Fuel Injection Pumps and Governors

 ① NPP 001/4 CAT 7,0 a
2. Edition

En

PES 4 P 80 A 720 LS 440 RQV 375-1100 PA 610

Komb.-Nr. 9 400 087 277

superseded by 84

company Caterpillar

engine 3304 NA

100 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $1,95-2,05$
($1,90-2,10$) mm (from BDC); RW = 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 13,0+0,1 | 11,2-11,3 | 0,2(0,35) | | | |
| 375 | 6,7-6,9 | 1,0-1,7 | 0,2(0,3) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1130 | 15,2-17,8 | - | - | - | ca. 14 | 250 | min. 10,0 | 1100 | 8,3 |
| ca. 67 | 12,1 4,0 1350 | 1130-1140 1230-1260 0 - 1,0 | | | | 350-450 | 375 | 5,9-6,1 480-540 = 2,0 | | |

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|------------------------------------|---|--|------------------------------------|--|-------------------------------------|-----------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1100 | 112,0-113,0 (110,5-114,5) | 1130-1140 * | 700 | 107,5-110,5 (106,5-111,5) | 100 | 152,0-172,0 = 17,6-18,6 mm RW | - | - |
| | | | | | 375 | 5,9-6,1 mm RW | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H4

H4

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 d 1

2. Edition

En

PES 6 P 120 A 720 LS 457 RQV 250-1050 PA 672
 Komb.-Nr. 0 402 046 280
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.84
 company: MAN
 engine: D 2566 MLE
 220 kW/2100 min⁻¹
 Schiff
 MAN-Nr. 2-7322

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC) 7yl. 6

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1050 | 10,3+0,1 | 17,2 - 17,4 | 0,5 (0,9) | | | |
| 250 | 6,0-6,2 | 1,5 - 2,1 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|---------------------|-------------------------------|-----------------------|--------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1100 | 15,2-17,8 | - | - | - | ca. 10 | 100 | min. 7,6 | 350 | 2,0-2,5 |
| ca. 62 | 9,3 4,0 1350 | 1090-1100 1190-1220 0-1,0 | | | | | 250 390-450 =2,0 | 6,0-6,2 =2,0 | 800 1050 | 6,4-6,6 8,0-8,2 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics high idle speed ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|--|---|------------------------------------|--|------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /100G strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1050 | 172,0-174,0 (169,0-177,0) | 1090-1100 * | - | - | 100 | 285,0-305,0 (281,0-309,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H5

H5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 10,8 a 1

2. Edition

En

PE 6 P 120 A 320 RS 468 RSUV 300-1150 PO A 324 DR
1- 6- 3 - 2- 5 - 4
0-90-120-210-240-330°+0,5°(±0,75°)
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

superseded 7.84
company: MWM
D-TBD 234 V6
engine Komb.-Nr. 0 401 876 271

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1150 | 9,4-9,5 | 14,3-14,7 | 0,5(0,9) | | | |
| 300 | 6,2-6,4 | 2,8-3,6 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|--------------------|-----------------------------------|--------------------------|---|---|--|-------------------|---------|------------------|----------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | mm 9 | rev/min 10 | mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca.24 | 300 | 5,8 | - | - |
| | x= 4,0 | | | | | | 300 | 6,2-6,4 | | |
| | | | | | | | 400-460 | =2,0 | | |
| ca.66 2a | 8,4 4,0 1390 | 1190-1200 1230-1260 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery Idle 5 | | 4a Idle stop | |
|--|------------------------------------|---|----------------------------------|------------------------------------|-------------------------------|------------------------------------|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1150 | 143,0-147,0 (140,0-150,0) | 1190-1200* | - | - | 100 | 260,0-290,0 =15,8-16,0 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H6

H6

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 8,0 k

7. Edition

En

PE 6 P 110 A 720 RS 3034 RSV 350-1200 P 1/462 R
Komb.-Nr. 0 401 876 715 See page 2

supersedes 3.84 Scania
company DS 8 05
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke ^{3,3-3,4} (3,25-3,45) mm (from BD_{CR}) = 9,0 - 12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 700 | 12,8+0,1 | 12,1-12,3 | 0,5(0,7) | | | 2,5 ± 0,1 (2,2 - 2,9) |
| 350 | 5,9-6,1 | - | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|--------------------|-----------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 29 | 350 | 5,5 | - | - |
| | | x = 4,0 | | | | | 350 | 5,9-6,1 | | |
| ca. 71 | 11,8 | 1240-1250 | | | | | 500-560=2,0 | | | |
| 2a | 4,0 | 1310-1340 | | | | | | | | |
| | 1450 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery Idle 5 | | 4a Idle stop | |
|--|------------------------------------|---|----------------------------------|------------------------------------|-------------------------------|------------------------------------|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 700 | 121,0-123,0 (119,0-125,0) | 1240-1250* | 1200 | 126,5-131,5 (124,0-134,0) | 100 | 190,0-240,0 =20,0-21,0 mm RW | 350 | 5,5 |

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22. 8. 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 i

6. Edition

PE 6 P 110 A 720 RS 3034 RQV 200-1200 PA 554
Komb.-Nr. 0 401 846 733

supersedes 0.84
company Scania
engine: DS 805

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,3-3,4$ mm (from BDC) = RW 9,0-12,0 mm
(3,25-3,45)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 12,8+0,1 | 12,1-12,3 | 0,5(0,7) | | | 2,5 [±] 0,1 |
| 225 | 5,9-6,1 | 1,5-1,9 | 0,2(0,4) | | | (2,2-2,9) |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Degree of deflection of control lever 1 | Upper rated speed | | Degree of deflection of control lever 4 | Intermediate rated speed | | Degree of deflection of control lever 7 | Lower rated speed | | Sliding sleeve travel ① | |
|--|---------------------|---------------------------------------|--|--------------------------|----------------------------|--|-------------------|----------------------------|----------------------------|----------|
| | rev/min 2 | Control rod travel mm rev/min 3 | | rev/min 5 | Control rod travel mm ④ | | rev/min 8 | Control rod travel mm ③ | rev/min 10 | mm 11 |
| max. | 1220 | 15,2-17,8 | - | - | - | ca.16 | 100 | min.7,4 | 150 | 0,5-0,8 |
| ca. 64 | 11,8 4,0 1500 | 1240-1250 1385-1415 0-1,0 | | | | | 225 | 5,9-6,1 | 500 | 3,8-4,5 |
| | | | | | | | 410-470 = 2,0 | | 850 | 5,9-6,1 |
| | | | | | | | | | 1200 | 8,4 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational speed limitation intermediate speed ④a | Fuel delivery characteristics high idle speed ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|---|--|--|---|---|------------------------------------|-------------------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 700 | 0,9 bar 121,0-123,0 (119,0-125,0) | 1240-1250* | LDA 1200 | 0,9 bar 126,5-131,5 (124,0-134,0) | 100 | 190,0-240,0 =20,0-21,0 mm RW | - | - |
| | | | LDA 500 | 0 bar 85,0-89,0 (83,0-91,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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05.85

H9

H9

D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 i

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-----------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE6P .. RS 3034 +RQV .. PA 554 | 0,90 | 0 | 12,8 - 12,9 |
| | | 0,33 | 11,6 - 11,7 |
| | | 0,22 | 12,5 - 12,6 |
| | | | 11,7 - 11,9 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22. 8. 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 5

2. Edition

En

PE 6 P 110 A 320 RS 3108 RQV 325-1100 PA 232

Komb.-Nr. 0 401 846 753

superseded by 84
company: Volvo-BM
TD 100 G
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testo ISO 4113

Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 11,5+0,1 | 14,8-15,0 | 0,4(0,8) | | | |
| 325 | 3,9-4,1 | 1,6-2,0 | 0,3(0,6) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | |
|--|--|---|--|--------------|-------------------------------|--|--------------|-------------------------------|-------------------------|--------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min ①a ②a | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm ④ | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm ③ | rev/min 10 | mm 11 |
| max. | 1175 | 15,2-17,8 | - | - | - | ca. 11 | 100 325 | min.6,0 3,9-4,1 | 275 550 | 1,2-1,4 3,3-3,8 |
| ca. 44 | 10,5 4,0 1350 | 1140-1150 1220-1250 0-1,0 | | | | | 340-400=2,0 | | 825 100 | 5,3-5,6 8,0 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b ④a | Fuel delivery characteristics ⑤a high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ Control rod travel mm | |
|---|--|--|--|---------------------------------------|--|--|--|---------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | mm 9 |
| LDA 700 | 0,75 bar 148,0-150,0 (145,0-153,0) | 1140-1150* | LDA 700 | 0 bar 114,0-118,0 (111,0-121,0) | 100 325 | 170,0-200,0 =20,0-21,0 mm RW 16,0-20,0 (13,5-22,5) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 q 5

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 3108 +RQV..PA 232 | 0,75 | 0 0,46 0,34 | 11,6-11,7 9,7-9,8 11,1-11,2 10,3-10,5 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,4 q 1

1. Edition

En

PES 6 P 120 A 820 LS 3112-10 RSV 350-1100 POA 500

supersedes -

Werte gelten nur für

company Daimler-Benz
OM407A

Values only apply to test nozzle-and-holder assembly

engine 206 kW (280 PS)

1 688 901 019 and fuel-injection test tubing 1 680 750 067

Komb.-Nr. 0 402 076 718

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 11,5+0,1 | 17,5 - 17,7 | 0,5 (0,9) | | | |
| 350 | 4,7-4,9 | 1,6 - 2,2 | 0,8 (1,2) | | | |
| 600 | - | C, Sp. 4 u. 5 | 0,75(1,2) | | | |
| 500 | - | | | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 25 | 350 | 4,8 | - | - |
| | x = 3,25 | | | | | | 420-460 | = 2,0 | | |
| ca. 48 | 10,5 | 1135-1145 | | | | | | | | |
| 2a | 4,0 | 1215-1245 | | | | | | | | |
| | 1300 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|---|--------------------------|------------|---|-------------------------------|------------------------------|-------------------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ... | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| LDA 1100 | 0,7 bar 175,0-177,0 (172,0-180,0) | 1135-1145* | LDA 600 | 0,7 bar 177,0-183,0 (174,0-185,0) | 100 | 150,0-170,0 (146,0-174,0) | - | - | |
| | | | LDA 500 | 0 bar 143,0-145,0 (140,0-148,0) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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Testoil-ISO 4113

H13

H13

D. Adjustment Test for Manifold Pressure Compensator

MB 11,4 q 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|-----------------------------------|---------------------------------|-------------------------------------|---|
| PES6P..LS3112-10 + RSV..POA500 | 0,70 | 0,40 0,50 0 | 11,8 - 11,9 10,7 - 10,9 11,6 - 11,7 10,5 - 10,6 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

43

WPP 001/4 SSC 31,8 b 1

1. Edition

En

PE 12 P 130 A 520/6 RS 3114-1 RQ 425/1250 PA 697-1

Komb.-Nr. 0 401 830 706

1- 8- 5-10- 3 - 7 - 6 - 11- 2- 9- 4- 12

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes-

company: SSCM

engine: V 12 X

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 11,4-0,1 | 23,9-24,2 | 0,6(1,0) | | | |
| 425 | 6,3-6,5 | 2,7-3,3 | 1,0(1,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | Full-load speed regulation Setting point rev/min 3 | | | | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | Torque control rev/min 11 | | Control rod travel mm 12 |
|---|-----------|-------------------------------|---|------|-----------|-----|-------------------------------|-------------------------------|--------------|--|----------|-------------------------------|--------------|--------------------------------|---------------------------------|--|--------------------------------|
| 900 | 12,7-14,3 | 900 | 13,5 | 10,4 | 1295-1310 | 425 | 6,4 | 100 | min.7,9 | 250 | 11,4+0,1 | 425 | 6,3-6,5 | 625 | 13,8+0,3 | | |
| VH max. 46° | | | | 4,0 | 1335-1365 | | | 465-505 | = 2,0 | | | | | | | | |
| | | | | 1450 | 0-1,0 | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = 1,5 mm Speed regulation: At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | Control rod stop rev/min 3 | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | Starting fuel delivery Idle speed rev/min 6 | | Control rod travel cm ³ /1000 strokes/mm 7 |
|---|---|-------------------------------------|----------------------------------|---|---|-------------------------------------|--|---|---|
| LDA 1000 | 0,9 bar 239,0-242,0 (235,5-245,5) | - | LDA 750 | 0 bar 174,0-177,0 (170,5-180,5) | - | - | - | - | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

SSC 31,8 b 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-----------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 12..RS 3114-1 +RQ..PA 697-1 | 0,90 | 0 0,42 0,28 | 11,4-11,5 9,4-9,5 10,9-11,0 10,0-10,2 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 GUS 18,0 c

1. Edition

En

PE 6 P 120 A 720 RS 3130 RSV 300-750 P 1/427-1
Komb.-Nr. 0 401 876 736
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company **GUASCOR**
engine **F 180**
220 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDG) RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 700 | 15,0+0,1 | 25,8-26,0 | 0,5 (0,9) | | | |
| 300 | 7,0-7,2 | 1,7-2,3 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|--------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel min rev/min | 4 | 5 | 6 | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 15 | 300 | 7,1 | - | - |
| | x = 2,25 | | | | | | 300 | 7,0-7,2 | | |
| | 400-450 = 2,0 | | | | | | | | | |
| ca. 31 | 14,0 | 750-755 | | | | | | | | |
| 2a | 5,0 | 776-789 | | | | | | | | |
| | 900 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|------------------------------|--------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | Note: changed to ... rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 700 | 258,0-260,0 (255,0-263,0) | 750-755* | - | - | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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7.85

1117

1117

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131
Komb.-Nr. 0 402 046 751

RQ 300/1100 PA 723

supersedes
company: Daimler-Benz
engine: OM 427 H
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,3-4,4 \\ (4,25-4,45) \end{matrix}$ mm (from BDC), RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 11,1+0,1 | 14,0-14,2 | 0,4(0,8) | | | |
| 300 | 7,1-7,3 | 1,4-2,0 | 0,45(0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ⑤ | | | | Torque control ③ | |
|-----------------------------------|--------------------------|---|--------------------------|--------------------------|--------------------|--|--------------------------|--------------------------|----------|--------------------------|----|
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 550 | 19,2-20,8 | 550 | 20,0 | 10,2 | 1145-1160 | 300 | 7,2 | 100 | min. 8,8 | - | - |
| VH = | max. 46° | | | 4,0 1300 | 1190-1220 0-1,5 | | | 300 | 7,1-7,3 | | |
| | | | | | | | | 360-400 | = 2,0 | | |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|-------------------------------|---------------------|----------------------------------|-------------------------------|--|----------------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1100 | 140,0-142,0 (137,0-145,0) | - | 600 | 117,0-121,0 (114,0-124,0) | 100 | 130,0-150,0 (126,0-154,0) |

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131
Komb.-Nr. 0 402 046 763

RQ 300/1100 PA 771

supersedes _
company: Daimler-Benz
engine: OM 427 H
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,3-4,4}
(4,25-4,45) mm (from BDC) cyl. 6

| Rotational speed rev/min 1 | Control rod travel mm: 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|--------------------------------|--|---|-------------------------------|--|--|
| 1100 | 9,4-9,5 | 11,0-11,2 | 0,4(0,8) | | | |
| 300 | 7,1-7,3 | 1,4-2,0 | 0,4(0,8) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | ① Control rod travel mm 2 | | Full-load speed regulation Setting point rev/min 3 | | ④ Control rod travel mm 4 | | Test specifications Control rod travel mm 5 | | rev/min 6 | | Idle speed regulation Setting point rev/min 7 | | ⑤ Control rod travel mm 8 | | Test specifications rev/min 9 | | Control rod travel mm 10 | | Torque control rev/min 11 | | ③ Control rod travel mm 12 | |
|---|-----------|---------------------------------|------|---|-----------|---------------------------------|-----|--|----------|--------------|---------|--|-----------|---------------------------------|---------|-------------------------------------|--|--------------------------------|--|---------------------------------|--|----------------------------------|--|
| 600 | 13,0-14,0 | 600 | 13,5 | 8,4 | 1145-1160 | 300 | 7,2 | 100 | min. 8,8 | 1100 | 9,4-9,5 | 500 | 10,2-10,4 | 950 | 9,7-9,9 | | | | | | | | |
| | | | | 4,0 | 1195-1225 | | | 300 | 7,1-7,3 | | | | | | | | | | | | | | |
| | | | | 1300 | 0-1,5 | | | 360-400 | = 2,0 | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | ② cm ³ /-1000 strokes 2 | | Control rod stop rev/min 3 | | ③a | | Fuel delivery characteristics rev/min 4 | | ③b | | Starting fuel delivery Idle speed rev/min 6 | | ⑥ Control rod travel cm ³ /1000 strokes./ mm 7 | |
|---|------------------------------|---------------------------------------|--|----------------------------------|----------------------------|-----|---|---|--|----|--|--|--|---|--|
| 1100 | 110,0-112,0 (107,5-114,5) | - | | 500 | 96,0-100,0 (93,0-103,0) | 100 | 63,0-83,0 (59,0-87,0) =10,8-11,0 mm RW with TAS* mounted | | | | | | | | |

* (TAS = temperature-dependent starting fuel delivery).

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 r

1. Edition

En

PE 6 P 120 A 320 RS 3134 RQV 250-1100 PA 371/2 R
Komb.-Nr. 9 400 087 312
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company Volvo
engine: TM 101 G

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC); RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|--|
| 1 | 2 | 3 | 4 | 2 | 3 | 8 |
| 700 | 14,8+0,1 | 27,8-28,0 | 0,5(0,9) | | | |
| 250 | 5,6-5,8 | 1,5-2,1 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

Test on ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------------------|---------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|-------------|-----------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1100 | 15,2-17,8 | - | - | - | ca. 9 | 100 | min.4,0 | 250 | 0,5-1,1 |
| ca. 49 | 13,8 4,0 1375 | 1160-1170 1265-1295 0-1,0 | | | | | 250 | 2,1-2,3 | 500 | 2,4-3,1 |
| | | | | | | | 230-290=2,0 | | 800 | 4,6-5,1 |
| | | | | | | | | | 1100 | 7,5 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|--|---|--|---------------------------------------|--|------------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 700 | 0,35 bar 278,0-280,0 (275,0-283,0) | 1160-1170* | LDA 700 | 0 bar 259,0-261,0 (256,0-264,0) | 100 | 240,0-260,0 =19,0-21,0 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 r

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|--------------------------------------|---------------------------------|-------------------------------------|---|
| PE 6 P..RS 3134 + RQV..PA 371/2 R | 0,35 | 0 0,25 0,20 | 14,8-14,9 14,1-14,2 14,7-14,8 14,3-14,5 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 10 P 110 A 920/5 LS 3138 RQ 300/1150 PA 535-1
Komb.-Nr. 0 401 849 712

supersedes
company: KHD
engine: BF 10 L 413 FZT
265 kW

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 800 | 12,0+0,1 | 9,7-10,0 | 0,4(0,75) | | | |
| 300 | 8,6-8,8 | 1,1-1,9 | 0,45(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ① | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|--------------|--|-------------------------------|--------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 600 | 19,2-20,9 | 600 | 20,0 | 10,3 | 1195-1210 | 300 | 7,0 | 100 | min. 8,4 | 1150 | 11,3-11,4 |
| VH = | max. 46° | | | 4,0 | 1235-1265 | | | 300 | 6,9 - 7,1 | 800 | 12,0-12,1 |
| | | | | 1350 | 0-1,0 | | | 370-430 | = 2,0 | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|---|---------------------|----------------------------------|-------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm Control rod travel 7 |
| LDA 800 | 0,9 bar 143,5-146,5 (141,0-149,0) | - | - | - | - | - |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 n

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement | | Control rod travel- diminution difference mm (1) |
|------------------------------------|---------------------------------|----------------------|----------------------|---|
| | | Gauge pressure = bar | Gauge pressure = bar | |
| PE 10 P..LS 3138 + RQ..PA 535-1 | 0,90 | | | 12,0-12,1 |
| | | 0 | | 10,0-10,1 |
| | | 0,50 | | 11,5-11,6 |
| | | 0,35 | | 10,2-10,4 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 720 RS 7004 RQ 900 PA 695
 Komb.-Nr. 9 400 087 297
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
 company: Saab-Scania
 DS 11
 engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke ^{5,0-5,1} (4,95-5,15) mm (from BDP) RW = 9,0 - 12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,8+0,1 | 20,7 - 20,9 | 0,6 (0,9) | | | 3,3 + 0,1 (3,0-3,5) ** |

Adjust the fuel delivery from each outlet according to the values in
 ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 2,9 - 3,1 mm.

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | ① Control rod travel mm 2 | | Full-load speed regulation Setting point rev/min 3 | | ④ Test specifications Control rod travel mm 5 | | rev/min 6 | | Idle speed regulation Setting point rev/min 7 | | ⑤ Control rod travel mm 8 | | rev/min 9 | | Control rod travel mm 10 | | Torque control rev/min 11 | | Control rod travel mm 12 | | ③ | |
|---|---|---------------------------------|---|---|---|--|---------|--------------|---|--|---|---------------------------------|---|--------------|---|--------------------------------|---|---------------------------------|---|--------------------------------|---|---|---|
| - | - | - | - | - | - | 11,8 | 900-905 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | 4,0 | 941-955 | | | | | | | | | | | | | | | | |
| | | | | | | 1000 | 0-1,0 | | | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 900-905 min¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | ② cm ³ /-1000 strokes 2 | | Control rod stop rev/min 3 | | ③a | | Fuel delivery characteristics rev/min 4 | | ③b cm ³ /-1000 strokes 5 | | Starting fuel delivery Idle speed rev/min 6 | | ⑥ cm ³ /1000 strokes/mm Control rod travel 7 | |
|---|------------------------------|---------------------------------------|---|----------------------------------|---|----|---|---|---|--|---|--|---|---|--|
| 850 | 207,0-209,0 (204,0-212,0) | - | - | - | - | - | - | - | - | - | - | 100 | 240,0 - 290,0 = 20,0 - 21,0 mm RW | | |

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

En

PE8P110A320 LS 3802

RQ 300/1150 PA 187-3
RQ 300/1150 PA 187-5

supersedes 11.84

company: Daimler-Benz

engine: OM 422

206 kW (280 PS)

Komb.-Nr. 0 401 848 708
1-8-7-2-6-3-5-4 je 45° ±0,5° (±0,75°)

Note VDT - I - 401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDPN) = 9,0-12,0 mm
(3,95-4,15)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery (*) cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery (**) cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|--|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1150 | 12,3+0,1 | 12,7-12,9 | 0,4(0,8) | 11,7+0,1 | 13,3-13,5 | |
| 300 | 8,0-8,1 | 1,5-2,1 | 0,4(0,7) | 7,9-8,1 | 1,5-2,1 | |
| 600 | 12,3+0,1 | C, Sp. 4 u. 5 | 0,8(1,1) | 11,7+0,1 | C, Sp. 4 u. 5 | |

*) with return throttle (1) **) without return throttle(2)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ④ | | | | Torque control ③ | |
|-----------------------------------|--------------------------|---|--------------------------|--------------------------|-----------------------------------|--|--------------------------|------------------------------|---|--------------------------|----|
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 650 | 13,0-14,0 | 650 | 3,5 | 11,3 4,0 1350 | 1195-1210 1235-1265 0 - 1,0 | 300 | 8,1 | 100 300 420-460 550 | min. 10,2 8,0-8,2 = 2,0 max. 1,8 | - | - |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min. 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|--------------------------------|---------------------|----------------------------------|--------------------------------|--|----------------------------------|
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | cm ³ /1000 strokes/mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1150 (1) | 127,0-129,0 (124,0-132,0) | 600 | 600 | 118,0-122,0 (115,0-125,0) | 100 | 130,0-150,0 |

Checking values in brackets

B. Governor Settings

MB 14,6 e -2-

2

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-----------------------|----------------------------|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|------------------------------|--|-----------------------|----|
| ① | | Setting point | | Test specifications | | Setting point | | Test specifications | | ③ | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 650 | 13,0-14,0 | 650 | 13,5 | 10,7 4,0 1350 | 1195-1210 1240-1270 0-1,5 | 300 | 8,1 | 100 300 420-460 550 | min. 10,2 8,0-8,2 =2,0 max. 1,8 | - | - |

Torque-control travel on flyweight assembly dimension a = _____ mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|--------------------------------|------------------|-------------------------------|--------------------------------|--------------------------------------|------------------------------|
| ② | | ③a | ③b | | ⑥ | |
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1150 (2) | 133,5-135,5 (131,0-138,0) | 600 | 600 | 109,5-115,5 (106,5-118,5) | 100 | 130,0-150,0 (126,0-154,0) |

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-----------------------|----------------------------|-----------------------|-----------------------|---------|-----------------------|-----------------------|-----------------------|---------|-----------------------|----|
| ① | | Setting point | | Test specifications | | Setting point | | Test specifications | | ③ | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = _____ mm Speed regulation: At _____ min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|--------------------------------|------------------|-------------------------------|--------------------------------|--------------------------------------|-----------------------|
| ② | | ③a | ③b | | ⑥ | |
| rev/min | cm ³ /-1000 strokes | rev/min | rev/min | cm ³ /-1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | |

En Checking values in brackets

J2

J2

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 110 A 320 LS 3805 RQ 300/1150 PA 187-6
Komb.-Nr. 0 401 846 749
1 - 6 - 3 - 5 - 2 - 4
0 - 75-120-195-240-315⁰ ± 0,5⁰ (+ 0,75⁰)

supersedes 5.84
company: Daimler-Benz
engine: OM 421
159 kW (216 PS)

Note VDT - I - 401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$ mm (from BDC) cyl. 6; RW = 9,0-12,0 mm
(3,95-4,15)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery *) cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery **) cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|---|--|
| 1150 | 12,5+0,1 | 12,8-13,0 | 0,4(0,8) | 11,7+0,1 | 13,2-13,4 | |
| 300 | 8,3-8,5 | 1,2-1,8 | 0,4(0,7) | 7,8-8,0 | 1,2-1,8 | |
| 600 | - | C, Sp. 4 u. 5 | 0,6(0,9) | - | C, Sp. 4 u. 5 | |
| *) with return throttle (1) | | | **) without return throttle (2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | ① Control rod travel mm 2 | | Full-load speed regulation Setting point rev/min 3 | | ④ Control rod travel mm 4 | | Test specifications rev/min 5 | | ⑥ rev/min 6 | | Idle speed regulation Setting point rev/min 7 | | ⑧ Control rod travel mm 8 | | ⑤ Test specifications rev/min 9 | | ⑩ Control rod travel mm 10 | | Torque control rev/min 11 | | ③ Control rod travel mm 12 | |
|---|-----------|---------------------------------|------|---|-----------|---------------------------------|-----|-------------------------------------|----------|----------------|---|--|---|---------------------------------|---|---------------------------------------|---|----------------------------------|---|---------------------------------|---|----------------------------------|---|
| 650 | 13,2-14,0 | 650 | 13,6 | 11,5 | 1195-1210 | 300 | 8,4 | 100 | min.10,0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | 4,0 | 1240-1270 | | | 300 | 8,3-8,5 | | | | | | | | | | | | | | |
| | | | | 1350 | 0 - 1,0 | | | 430-470 | =2,0 | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | ② cm ³ /-1000 strokes 2 | | Control rod stop rev/min 3 | | ③a rev/min 4 | | Fuel delivery characteristics cm ³ /-1000 strokes 5 | | ③b rev/min 6 | | Starting fuel delivery Idle speed rev/min 7 | | ⑥ cm ³ /1000 strokes/mm Control rod travel mm | |
|---|------------------------------|---------------------------------------|-----|----------------------------------|------------------------------|-----------------|------------------------------|--|--|-----------------|--|--|--|--|--|
| (1) 1150 | 128,0-130,0 (125,0-133,0) | 600 | 600 | 600 | 120,0-124,0 (117,0-127,0) | 100 | 130,0-150,0 (126,0-154,0) | | | | | | | | |

Checking values in brackets

B. Governor Settings

MB 11,0 c 1

- 2 - (2)

| Checking of slider PRG check (1) | | Full-load speed regulation (4) | | | | Idle speed regulation (5) | | | | Torque control (3) | |
|-------------------------------------|-------------------------------|--------------------------------|-------------------------------|-------------------------------|-----------------------------------|---------------------------|-------------------------------|-----------------------|--------------------------------|--------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 650 | 13,2-14,0 | 650 | 13,6 | 10,7 4,0 1350 | 1195-1210 1240-1270 0 - 1,0 | 300 | 7,9 | 100 300 410-440 | min. 9,5 7,8-8,0 = 2,0 | - | - |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2) | | Control rod stop (3a) | Fuel delivery characteristics (3b) | | Starting fuel delivery Idle speed (6) | |
|---|-------------------------------------|-----------------------|------------------------------------|-------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | Control rod travel cm ³ /1000 strokes / mm 7 |
| (2) 1150 | 132,0-134,0 (129,5-136,5) | 600 | 600 | 110,0-114,0 (107,0-117,0) | 100 | 130,0-150,0 (126,0-154,0) |

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check (1) | | Full-load speed regulation (4) | | | | Idle speed regulation (5) | | | | Torque control (3) | |
|-------------------------------------|-------------------------------|--------------------------------|-------------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|--------------------------------|--------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2) | | Control rod stop (3a) | Fuel delivery characteristics (3b) | | Starting fuel delivery Idle speed (6) | |
|---|-------------------------------------|-----------------------|------------------------------------|-------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | Control rod travel cm ³ /1000 strokes / mm 7 |
| | | | | | | |

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 110 A 320 LS 3805 RQ 300/1150 PA 187-8
Komb.-Nr. 0 401 846 755

supersedes 9.83
company: Daimler-Benz
engine: OM 421
148 kW (201 PS)

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° ± 0,5° (± 0,75°)

Note VDT - I - 401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,0 - 4,1}{(3,95-4,15)}$ mm (from BDC) cyl. 6; RW = 9,0-12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery *) cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery **) cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|---|--|
| 1150 | 12,6+0,1 | 12,7-12,9 | 0,4(0,8) | 12,4+0,1 | 12,9-13,1 | |
| 300 | 8,5-8,7 | 1,6-2,2 | 0,4(0,7) | 8,7-8,9 | 1,6-2,2 | |
| *) with return throttle (1) | | | **) without return throttle (2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | | | Idle speed regulation Setting point rev/min 7 | | | | Torque control rev/min 11 | |
|---|-------------------------------|---|-------------------------------------|-------------------------------|---------------------------------|--|--------------------------------|-----------------------------|---------------------------------|---------------------------------|---|
| Control rod travel mm 2 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Control rod travel mm 8 | Control rod travel mm 9 | Control rod travel mm 10 | Control rod travel mm 12 | | | | |
| 650 | 13,2-14,0 | 650 | 13,6 | 11,6 4,0 1350 | 1195-1210 1240-1270 0-1,5 | 300 | 7,1 | 100 300 400-440 = 2,0 | min.8,5 7,0-7,2 4,0 = 2,0 | - | - |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|---|-------------------------------------|---------------------------------------|---|------------------------------|--|-------------|
| cm ³ /-1000 strokes 2 | cm ³ /-1000 strokes 5 | cm ³ /1000 strokes/mm 7 | | | | |
| (1) 1150 | 127,0-129,0 (124,0-132,0) | 600 | 600 | 117,0-121,0 (114,0-124,0) | 100 | 130,0-150,0 |

Checking values in brackets

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation ④ | | | | Idle speed regulation ⑤ | | | | Torque control ③ | |
|-----------------------------------|----------------------------|-------------------------------|----------------------------|----------------------------|-------------------------------------|-------------------------------|----------------------------|-------------------------------------|--------------------------------|------------------|-----------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Test specifications rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 650 | 13,2-14,0 | 650 | 13,6 | 11,4 | 1195-1210 1240-1270 0-1,5 | 300 | 7,1 | 100 300 400-440 = 2,0 | min. 8,5 7,0 - 7,2 = 2,0 | - | - |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|-------------------------------------|---------------------|----------------------------------|-------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes / mm Control rod travel 7 |
| (2) 1150 | 129,0-131,0 (126,5-133,5) | 600 | - | - | 100 | 130,0-150,0 (126,0-154,0) |

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation ④ | | | | Idle speed regulation ⑤ | | | | Torque control ③ | |
|-----------------------------------|----------------------------|-------------------------------|----------------------------|----------------------------|-------------------------------------|-------------------------------|----------------------------|-------------------------------------|-----------------------------|------------------|-----------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Test specifications rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|-------------------------------------|---------------------|----------------------------------|-------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes / mm Control rod travel 7 |
| | | | | | | |

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 c 2

4. Edition

En

PE6P110A 32OLS 3805
Komb.-Nr. 0 401 846 748

RQV 300-1150PA 524-4

 supersedes 5.84
 company: Daimler-Benz
 engine: OM 421
 159 kW (216 PS)

 1 - 6 - 3 - 5 - 2 - 4
 0 - 75-120-195-240-315° ±0,5° (±0,75°)

Note VDT - I - 401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\overset{4,0-4,1}{(3,95-4,15)}$ mm (from BDC) $\gamma 1. 6; PIV=9,0-12,0$ mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery * cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery ** cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|---|---|--------------------------------|--|--|
| 1150 | 12,5+0,1 | 12,8-13,0 | 0,4(0,8) | 11,7+0,1 | 13,2-13,4 | |
| 300 | 8,3-8,5 | 1,2-1,8 | 0,4(0,7) | 7,8-8,0 | 1,2-1,8 | |
| 600 | - | C, Sp. 4 u. 5 | 0,6(0,9) | - | C, Sp. 4 u. 5 | |
| * with return throttle (1) | | | | ** without return throttle (2) | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1150 | 15,2-17,8 | - | - | - | ca. 19 | 100 | min. 10,0 | 250 | 1,0-1,2 |
| ca. 65 | 11,5 | 1190-1200 | | | | | 300 | 8,3-8,5 | 550 | 3,4-3,7 |
| | 4,0 | 1240-1270 | | | | | | | 850 | 4,9-5,3 |
| | 1400 | 0-1,0 | | | | 330-730 | | | 1150 | 7,7 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics high idle speed ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|--|---|------------------------------------|--|------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1150 (1) | 128,0-130,0 (125,0-133,0) | 1190-1200* | 600 | 120,0-124,0 (117,0-127,0) | 100 | 130,0-150,0 | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

Testoil-ISO 4113

BOSCH

 Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung.
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 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

J7

J7

B. Governor Settings

MB 11,0 c 2

-2-

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|----------------------------------|----------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|-----------------------|---------------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1170 | 15,2-17,8 | - | - | - | ca. 19 | 100 | min. 9,5 | 250 | 1,0-1,2 |
| ca. 65 | 10,7 4,0 1400 | 1190-1200 1240-1270 0-1,0 | | | | | 300 | 7,8-8,0 | 550 850 1150 | 3,4-3,7 4,9-5,3 7,7 |
| | | | | | | | 310-710 | | | |

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1150 (2) | 132,0-134,0 (129,5-136,5) | 1190-1200* | 600 | 110,0-114,0 (107,0-117,0) | 100 | 130,0-150,0 (126,0-154,0) | - | - |

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|----------------------------------|----------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|-----------------------|----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | | | | | | | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 w 2

1. Edition

En

PE 6 P 120 A 720 RS 7007 y RQV 200-1000 PA 539-2
Komb.-Nr. 0 402 646 812 y
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
company: Scania
engine: DSC 1101
LKW 112

See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,5-4,6 \\ (4,45-4,65) \end{matrix}$ mm (from BDC) = RW 6,0 - 8,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 16,0+0,1 | 22,4 - 22,6 | 0,7 (1,0) | | | 3,3 ± 0,1 |
| 225 | 4,4-4,6 | 1,4 - 1,8 | 0,3 (0,6) | | | (3,0 - 3,5) ** |

Adjust the fuel delivery from each outlet according to the values in
** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 3,0 mm

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | |
|--|--|--|--|--------------|-------------------------------|--|---------------------|-------------------------------|-------------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | ①a Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm ④ | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm ③ | rev/min 10 | mm 11 |
| max. | 1040 | 15,2-17,8 | - | - | - | ca. 10 | 100 | min. 5,9 | 150 | 0,5-0,8 |
| ca. 62 | 15,0 4,0 1300 | 1040-1050 1175-1205 0-1,0 | | | | | 225 310-370 =2,0 | 4,4-4,6 | 430 720 000 | 3,1-3,6 5,1-5,4 7,9 |

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|---|---|----------------------------------|---|---|-------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 700 | 0,9 bar 224,0-226,0 (221,0-229,0) | 1040-1050 * | LDA 1000 | 0,9 bar 220,0-228,0 (218,0-230,0) | 100 | 240,0-290,0 = 20,0-21,0 mm RW | - | - |
| | | | LDA 500 | 0 bar 164,0-168,0 (162,0-170,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst, Kitz-Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 w 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-------------------------------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 7007 y +RQV..PA 539-2 | 0,90 | 0 0,41 0,29 | 16,0 - 16,1 11,8 - 11,9 14,0 - 14,1 12,4 - 12,6 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8.1983
- Start of fuel delivery-engine: 22° before TDC at control-rod travel 6 - 8 mm
- Firing sequence, engine : 1-5-4-2-6-3-7-8

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 15,9 b 2

1. Edition

En

PES 6 P 120 A 320 RS 7105 RQV 400-750 PA 731
Komb.-Nr. 0 402 746 803
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company Baudouin
engine: 6 P 15-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,6-3,7}{(3,55-3,75)}$ mm (from BDC); RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 700 | 12,2+0,1 | 41,9-42,1 | 0,5(0,9) | | | |
| 400 | 4,5-4,7 | 1,7-2,3 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------|--------------------------|---------------------------------------|------------|--------------------------|------------------------|------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 25 | 11,2 4,0 900 | 750-755 776-789 0-1,0 | - | - | - | ca. 8 | 100 400 | min.6,1 4,5-4,7 | 420 - 700 750 | 2,0 4,5 |

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 700 | 419,0-421,0 (416,0-424,0) | 750-755* | - | - | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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Test 150 419

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 31,8 c 1

1. Edition

En

PE 12 P 120 A 120 RS 7106 RQV 400-750 PA 731
 1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6
 0-45-60-105-120-165-180-225-240-285-300-345°_{+0,5°(+0,75°)}
 Komb.-Nr. 0 402 630 800
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 074

supersedes -
 company: Baudonin
 engine: V 12 P 15-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,6-3,7}
 (3,55-3,75) mm (from BD ϕ) RW = 9,0 - 12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 12,2+0,1 | 41,9 - 42,1 | 0,5 (0,9) | | | |
| 400 | 4,5-4,7 | 1,7 - 2,3 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|-------------------|-------------------------------|------------------------|-----------------------|--|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 | |
| max. | 700 | 15,2-17,8 | - | - | - | ca. 8 | 100 | min. 6,1 | 390 | 1,0-2,0 | |
| ca. 23 | 11,2 4,0 900 | 750-755 776-789 0 -1,0 | | | | | 400 | 4,5-4,7 | 420 - 700 750 | 2,0 4,2 | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational speed limitation intermediate speed rev/min ④a | Fuel delivery characteristics ⑤a high idle speed ⑤b | | Starting fuel delivery Idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|--|--|------------------------------------|---|------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 700 | 419,0-421,0 (416,0-424,0) | 750 - 755 * | - | - | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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J12

JAL

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 120 A 720 LS 7107 RQ 300/1100 PA 757
 Komb.-Nr. 0 402 746 804
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
 company: Daimler-Benz
 engine: OM 427 HA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 5,2-5,3 \\ (5,15-5,35) \end{matrix}$ mm (from BDC) RW = 9,0-12,0 mm

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1100 | 13,4+0,1 | 19,7-19,9 | 0,5(0,9) | | | |
| 300 | 5,8-6,0 | 1,4-2,0 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ④ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|--------------|--|-------------------------------|--------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 650 | 19,2-20,8 | 650 | 20,0 | 12,4 | 1145-1160 | 300 | 5,9 | 100 | min. 7,5 | - | - |
| VH = max. 46° | | | | 4,0 | 1220-1250 | | | 300 | 5,8-6,0 | | |
| | | | | 1350 | 0-1,5 | | | 380-420 | = 2,0 | | |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|--|---------------------|----------------------------------|--|--|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 1100 | 0,75 bar 197,0-199,0 (194,0-202,0) | - | LDA 600 | 0,75 bar 195,0-198,0 (192,0-201,0) | 100 | 150,0-170,0 (146,0-174,0) |
| | | | LDA 500 | 0 bar 144,0-146,0 (141,0-149,0) | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 11,7 b

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|----------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 6 P..LS 7107 + RQ..PA 757 | 0 | 0,23 0,37 | 10,7-11,0 11,0-11,2 12,4-12,6 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Distributor-type Fuel-injection Pumps

VE 4/9 F 2250 R 41
0 460 494 027
DHK:1 688 901 022

Overflow temperature 45° C

supersedes 3.85
company: Renault
engine: 852

Fuel injection test tubing 1 680 750 073

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 1400 | 4,4-4,8 mm | | |
| 1.2 Supply-pump pressure | 1400 | 4,9-5,5 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | - | - cm ³ /1000 strokes | | |
| Full-load delivery without charge-air pressure | 1400 | 34,5-35,5 cm ³ /1000 strokes | | 2,5 |
| 1.4 Idle regulation | 400 | 7,0-11,0 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.5 Full-speed regulation | 2500 | 17,0-23,0 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 52,0 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | 1400 | - | | |

2. Test Specifications checking values in brackets ()

| | | | | |
|-------------------|----------------------------|-------------------|-----------------|-------------------|
| 2.1 Timing device | n = rev/min | 1000 | 1400 | 2000 |
| | mm | 2,6-3,4 (2,3-3,7) | (3,9-5,3) | 6,7-7,5 (6,4-7,8) |
| 2.2 Supply pump | n = rev/min | 1000 | 2000 | |
| | bar (kgf/cm ²) | 3,9-4,5 | 6,5-7,1 | |
| Overflow delivery | n = rev/min | 500 | 2250 | |
| | cm ³ /10 s | 55-138 (40-153) | 55-138 (40-153) | |

| 2.3 Fuel deliveries | | | |
|---------------------|--------------------|---|--|
| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
| End stop | 2550 | max. 2,0 | |
| | 2400 | (16,0-24,0) | |
| | 2200 | 36,0-38,0 (34,7-39,3) | |
| | 2100 | 36,5-38,5 (35,2-39,8) | |
| | 1400 | (32,7-37,3) | |
| | 1000 | 33,5-36,5 (32,0-38,0) | |
| switch-off | 2500 | 0 | |
| | 650 | max. 5,0 | |
| Idle stop | 400 | (5,0-13,0) | |
| | End stop | 320 | min. 45,0 |
| 430 | | max. 45,0 | |
| 2.4 Solenoid | cut-in voltage | min. 10V rated voltage 12 V. | |

| 3. Dimensions <small>for assembly and adjustment mm</small> | |
|---|-----------|
| Designation | mm |
| K | 3,2-3,4 |
| KF | 5,7-5,9 |
| MS | 1,4-1,6 |
| SVS | max. 3,5 |
| XK | 20,1-22,1 |
| XL | 9,5-13,3 |
| Observations | |

⑥

Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 PEU 2,5 a

4. Edition

En

VE 4/9 F 2250 R 84 Overflow temperature 45° C
 0 460 494 079
 DHK 1 688 901 022/130 bar
 Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes 3.85
 company: Peugeot
 engine: XD 3

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

Testoil-ISO 4113

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|-----------------------|---|---|---|
| 1.1 Timing device travel | 1500 | 5,4-5,8 mm | | |
| 1.2 Supply-pump pressure | 1500 | 5,5-6,1 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | 1500 | 38,7-39,7 cm ³ /1000 strokes | | 2,5 (3,0) |
| Full-load delivery without charge-air pressure | 400 | 6,0-10,0 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.4 Idle regulation | 2325 | 25,5-31,5 cm ³ /1000 strokes | | |
| 1.5 Full-speed regulation | 100 | min. 45 cm ³ /1000 strokes | | |
| 1.6 Start | 1500 | - | | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications

checking values in brackets ()

| | | | | | |
|-------------------|---|-------------------------|--------------------------|------------------------|--------------------------|
| 2.1 Timing device | n = rev/min mm | 700 0,6-1,4(0,3-1,7) | 1000 2,5-3,1(2,1-3,5) | 1500 (4,9-6,3) | 2000 8,1-8,9(7,8-9,2) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 400 2,1-2,7 | | 2200 7,5-8,1 | |
| Overflow delivery | n = rev/min cm ³ /10 s | 400 42-83(27-98) | | 2250 55-138(40-153) | |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|-----------------------|--|---|
| End stop | 2550 | max. 2,0 | |
| | 2450 | 4,5-12,5 (4,5-12,5) | |
| | 2325 | (24,5-32,5) | |
| | 2200 | 40,0-42,0 (38,7-43,3) | |
| | 2000 | 40,0-42,0 (38,7-43,3) | |
| | 1500 | (36,9-41,5) | |
| | 1000 | 38,1-40,7 (36,9-41,5) | |
| 600 | 36,8-39,8 (35,3-41,3) | | |
| switch-off | | | |
| Idle stop | 400 | (4,0-12,0) | |
| End stop | 440 | max. 2,0 | |
| | 350 | min. 45 | |
| | 450 | max. 45 | |

3. Dimensions

for assembly and adjustment mm

| Designation | mm |
|-------------|-----------|
| K | K1 |
| KF | 5,2-5,4 |
| MS | 0,9-1,2 |
| SVS | 3,3 |
| A XK | 20,2-22,2 |
| B XL | 9,9-13,3 |

Observations

2.4 Solenoid

cut-in voltage min. 10 V
 rated voltage 12 V.

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9.85

J16

J16

Test Specifications Distributor-type Fuel-injection Pumps

VE 4/9 F 2250 R 84-1 Overflow temperature 45° C
 0 460 494 125
 DHK 1 688 901 022/130 bar
 Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes
 company: Peugeot
 engine: XD 3

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|--|-----------------------|--|---|---|
| 1.1 Timing device travel | 1500 | 5,4-5,8 mm | | |
| 1.2 Supply-pump pressure | 1500 | 5,5-6,1 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | | | cm ³ /1000 strokes | |
| Full-load delivery without charge-air pressure | 1500 | 38,7-39,7 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.4 Idle regulation | 400 | 6,0-10,0 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.5 Full-speed regulation | 2325 | 25,5-31,5 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 45 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | 1500 | - | | |

2. Test Specifications checking values in brackets ()

| | | | | | |
|-------------------|---|-------------------------|--------------------------|------------------------|--------------------------|
| 2.1 Timing device | n = rev/min mm | 700 0,6-1,4(0,3-1,7) | 1000 2,5-3,1(2,1-3,5) | 1500 (4,9-6,3) | 2000 8,1-8,9(7,8-9,2) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 400 2,1-2,7 | | 2200 7,5-8,1 | |
| Overflow delivery | n = rev/min cm ³ /10 s | 400 42-83(27-98) | | 2250 55-138(40-153) | |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------------|-----------------------|--|---|
| End stop | 2550 | max. 2,0 | |
| | 2450 | 4,5-12,5 (4,5-12,5) | |
| | 2325 | | (24,5-32,5) |
| | 2200 | 40,0-42,0 (38,7-43,3) | |
| | 2000 | 40,0-42,0 (38,7-43,3) | |
| | 1500 | | (36,9-41,5) |
| | 1000 | 38,1-40,7 (36,9-41,5) | |
| | 600 | 36,8-39,8 (35,3-41,3) | |
| switch-off | | | |
| Idle stop End stop | 400 | | (4,0-12,0) |
| | 440 | max. 2,0 | |
| | 350 | min. 45 | |
| | 450 | max. 45 | |

3. Dimensions

| Designation | for assembly and adjustment mm |
|-------------|--------------------------------------|
| K | K1 |
| KF | 5,2-5,4 |
| MS | 0,9-1,2 |
| SVS | 3,3 |
| A | |
| B | |

Observations

| | | |
|--------------|----------------|---------------------|
| 2.4 Solenoid | cut-in voltage | min. 10 V |
| | | rated voltage 12 V. |

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3 k

4. Edition

En

VE 4/9 F 2075 R 126

Overflow temperature 45° C

supersedes 1.85
company: Peugeot
engine: XD 3 S

0 460 494 121

DHK 1 688 901 022/130 bar

Fuel injection test tubing 6x2x450 mm/1 680 750 073

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 1500 | 5,8 - 6,2 mm | 0,8 | |
| 1.2 Supply-pump pressure | 1500 | 5,6 - 6,2 bar (kgf/cm ²) | 0,8 | |
| 1.3 Full-load delivery with charge-air pressure | 1500 | 52,5 - 53,5 cm ³ /1000 strokes | 0,8 | 2,5 (3,0) |
| Full-load delivery without charge-air pressure | 500 | 41,3 - 42,3 cm ³ /1000 strokes | 0 | |
| 1.4 Idle regulation | 350 | 20,0 - 24,0 cm ³ /1000 strokes | 0 | 2,0 (3,0) |
| 1.5 Full-speed regulation | 2300 | 26,5 - 32,5 cm ³ /1000 strokes | 0,8 | |
| 1.6 Start | 100 | min. 67,0 cm ³ /1000 strokes | 0 | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications checking values in brackets ()

| | | | | | |
|-------------------|----------------------------|--|-----------------|---------|------|
| 2.1 Timing device | n = rev/min | 750 | 1000 | 1500 | 2000 |
| LDA=0,8 bar | mm | 0,8-1,6(0,5-1,9) 2,5-3,3(2,7-3,6) (5,3-6,7) 7,8-8,6(7,5-8,9) | | | |
| 2.2 Supply pump | n = rev/min | 200 | 750 | 2000 | |
| LDA=0,8 bar | bar (kgf/cm ²) | 1,4-2,0 | 3,4-4,0 | 7,1-7,7 | |
| Overflow delivery | n = rev/min | 500 | 2075 | | |
| | cm ³ /10 s | 42-83 (27-98) | 55-138 (40-153) | | |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|--------------------|---|--|
| End stop | 2600 | max. 1,0 | 0,8 |
| | 2300 | (25,5-33,5) | 0,8 |
| | 2200 | 39,5-45,5 (38,5-46,5) | 0,8 |
| | 2000 | 51,0-53,0 (49,7-54,3) | 0,8 |
| | 1500 | (50,7-55,3) | 0,8 |
| | 1000 | 48,5-51,5 (47,7-52,3) | 0,8 |
| | 750* | 46,1-47,1 (44,3-48,9) | 0,25 |
| | 500 | (38,8-44,8) | 0 |
| switch-off | | | |
| electr. | 400 | 0 | |
| Idle stop | 500 | max. 1,0 | |
| | 400 | 8,0-12,0 (6,0-14,0) | |
| | 350 | (18,0-26,0) | |
| End stop | 230 | min. 60 | |
| | 330 | max. 60 | |

3. Dimensions

| Designation | for assembly and adjustment mm |
|-------------|--------------------------------|
| K | |
| KF | K 1 |
| MS | 5,4 - 5,7 |
| SVS | 1,2 - 1,4 |
| | 4,6 |
| A XK | 20,2 -22,2 |
| B XL | 9,3 -12,6 |

Observations

* LDA-stroke 4,5 mm
Use adjusting nut (46) to correct.

2.4 Solenoid cut-in voltage min. 10 V
rated voltage 12 V.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3 k 3

3. Edition

En

VE 4/9 F 2075 R 126-1 Overflow temperature 45° C
 0 460 494 123
 DHK 1 688 901 022/130 bar
 Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes 1.85
 company: Peugeot
 engine: XD 3 S

Testcil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/...

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 1500 | 5,8 - 6,2 mm | 0,8 | |
| 1.2 Supply-pump pressure | 1500 | 5,6 - 6,2 bar (kgf/cm ²) | 0,8 | |
| 1.3 Full-load delivery with charge-air pressure | 1500 | 52,5 - 53,5 cm ³ /1000 strokes | 0,8 | 2,5 (3,0) |
| Full-load delivery without charge-air pressure | 500 | 41,3 - 42,3 cm ³ /1000 strokes | 0 | |
| 1.4 Idle regulation | 400 | 17,0 - 21,0 cm ³ /1000 strokes | 0 | 2,0 (3,0) |
| 1.5 Full-speed regulation | 2350 | 26,5 - 32,5 cm ³ /1000 strokes | 0,8 | |
| 1.6 Start | 100 | min. 67,0 cm ³ /1000 strokes | 0 | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications checking values in brackets ()

| | | | | | |
|-------------------|----------------------------|--|-----------------|---------|------|
| 2.1 Timing device | n = rev/min | 750 | 1000 | 1500 | 2000 |
| LDA=0,8 bar | mm | 0,8-1,6(0,5-1,9) 2,5-3,3(2,7-3,6) (5,3-6,7) 7,8-8,6(7,5-8,9) | | | |
| 2.2 Supply pump | n = rev/min | 200 | 750 | 2000 | |
| LDA=0,8 bar | bar (kgf/cm ²) | 1,4-2,0 | 3,4-4,0 | 7,1-7,7 | |
| Overflow delivery | n = rev/min | 500 | 2075 | | |
| | cm ³ /10 s | 42-83 (27-98) | 55-138 (40-153) | | |

| 2.3 Fuel deliveries | Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) | |
|---------------------|---------------------|--------------------|---|--|--|
| End stop | | 2650 | max. 1,0 | 0,8 | |
| | | 2350 | (25,5-33,5) | 0,8 | |
| | | 2250 | 38,5-44,5 (37,5-45,5) | 0,8 | |
| | | 2000 | 51,0-53,0 (49,7-54,3) | 0,8 | |
| | | 1500 | (50,7-55,3) | 0,8 | |
| | | 1000 | 48,5-51,5 (47,7-52,3) | 0,8 | |
| | | 750* | 46,1-47,1 (44,3-48,9) | 0,25 | |
| | | 500 | (38,8-44,8) | 0 | |
| | | switch-off | | | |
| | | electr. | 400 | 0 | |
| Idle stop | | 400 | (15,0-23,0) | | |
| | | 450 | 5,0- 9,0 (3,0-11,0) | | |
| | | 550 | max. 3,5 | | |
| | | End stop | 230 | min. 60 | |
| | | 330 | max. 60 | | |

| 3. Dimensions <small>for assembly and adjustment mm</small> | |
|---|------------|
| Designation | |
| K | K 1 |
| KF | 5,4 - 5,7 |
| MS | 1,2 - 1,4 |
| SVS | 4,6 |
| A XK | 20,2 -22,2 |
| B XL | 9,3 -12,6 |

Observations
 * LDA-stroke 4,5 mm
 Use adjusting nut (46) to correct.

| | | |
|--------------|----------------|----------------------------------|
| 2.4 Solenoid | cut-in voltage | min. 10 V rated voltage 12 V. |
|--------------|----------------|----------------------------------|

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,5 d
2. Edition

VE 4/9 F 2075 R 126-3. Overflow temperature 45° C
0 460 494 178
DHK 1 688 901 022/130 bar
Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes 3.85
company: Peugeot
engine: XD 3 T

En

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|-----------------------|---|---|---|
| 1.1 Timing device travel | 1500 | 5,8 - 6,2 mm | 0,8 | |
| 1.2 Supply-pump pressure | 1500 | 5,6 - 6,2 bar (kgf/cm ²) | 0,8 | |
| 1.3 Full-load delivery with charge-air pressure | 1500 | 52,5 - 53,5 cm ³ /1000 strokes | 0,8 | 2,5 (3,0) |
| Full-load delivery without charge-air pressure | 500 | 41,3 - 42,3 cm ³ /1000 strokes | 0 | |
| 1.4 Idle regulation | 400 | 17,0 - 21,0 cm ³ /1000 strokes | 0 | 2,0 (3,0) |
| 1.5 Full-speed regulation | 2350 | 26,5 - 32,5 cm ³ /1000 strokes | 0,8 | |
| 1.6 Start | 100 | min. 67,0 cm ³ /1000 strokes | 0 | |
| 1.7 Load-dependent port-closing | | | | |

2. Test Specifications

checking values in brackets ()

| | | | | | |
|------------------------------------|---|--------------------------|---------------------------|-------------------------|---------------------------|
| 2.1 Timing device LDA = 0,8 bar | n = rev/min mm | 750 0,8-1,6 (0,5-1,9) | 1000 2,5-3,3 (2,7-3,6) | 1500 (5,3-6,7) | 2000 7,8-8,6 (7,5-8,9) |
| 2.2 Supply pump LDA = 0,8 bar | n = rev/min bar (kgf/cm ²) | 200 1,4-2,0 | 750 3,4-4,0 | 2000 7,1-7,7 | |
| Overflow delivery | n = rev/min cm ³ /10 s | 500 42-83 (27-98) | | 2075 55-138 (40-153) | |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) | |
|---------------------|-----------------------|--|---|--|
| End stop | 2650 | max. 1,0 | 0,8 | |
| | 2350 | (25,5-33,5) | 0,8 | |
| | 2250 | 38,5-44,5 (37,5-45,5) | 0,8 | |
| | 2000 | 51,0-53,0 (49,7-54,3) | 0,8 | |
| | 1500 | (50,7-55,3) | 0,8 | |
| | 1000 | 48,5-51,5 (47,7-52,3) | 0,8 | |
| | 750* | 46,1-47,1 (44,3-48,9) | 0,25 | |
| | 500 | (38,8-44,8) | 0 | |
| switch-off | | | | |
| electr. | 400 | 0 | | |
| Idle stop | 400 | (15,0-23,0) | | |
| | 450 | 5,0- 9,0 (3,0-11,0) | | |
| | 550 | max. 3,5 | | |
| | End stop | 230 | min. 60 | |
| | | 330 | max. 60 | |

3. Dimensions

for assembly and adjustment
mm

| Designation | mm |
|-------------|------------|
| K | K 1 |
| KF | 5,2 - 5,4 |
| MS | 1,2 - 1,4 |
| SVS | 5,5 |
| A XK | 20,2 -22,2 |
| B XL | 9,3 -12,6 |

Observations

* LDA-stroke 4,5 mm
Use adjusting nut (46) to correct.

2.4 Solenoid

cut-in voltage

min. 22,0 V
rated voltage 24,0 V

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 5/10 F 2400 L 137
0 460 405 030

Overflow temperature 45° C

supersedes 3.85
company: VWV
engine: 153

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting

0,14 mm ± 0,02 (0,04)

see VDT-W-460/.

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 1400 | 2,4-2,8 mm | | |
| 1.2 Supply-pump pressure | 1400 | 5,0-5,6 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | 1400 | 32,5-33,5 cm ³ /1000 strokes | | 2,5 (3,0) |
| Full-load delivery without charge-air pressure | 375 | 6,0-10,0 cm ³ /1000 strokes | | 2,0 (3,0) |
| 1.4 Idle regulation | 2650 | 6,0-12,0 cm ³ /1000 strokes | | |
| 1.5 Full-speed regulation | 100 | min. 50,0 cm ³ /1000 strokes | | |
| 1.6 Start | - | | | |
| 1.7 Load-dependent port-closing | - | | | |

2. Test Specifications

checking values in brackets ()

| | | | | |
|-------------------|---|---------------------------|-------------------|---------------------------|
| 2.1 Timing device | n = rev/min mm | 1000 1,3-2,1 (1,0-2,4) | 1400 (1,9-3,3) | 2400 5,1-5,9 (4,8-6,2) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 500 2,8-3,4 | | 2400 7,3-7,9 |
| Overflow delivery | n = rev/min cm ³ /10 s | 500 55-138 (40-153) | | 2400 55-138 (40-153) |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Delivery strokes | Charge-air press. bar (kgf/cm ²) |
|--------------------------------|--------------------|-----------------------|--|
| End stop | 2800 | max. 3,0 | |
| | 2650 | (5,0-13,0) | |
| | 2400 | 27,0-29,0 (25,7-30,3) | |
| | 1400 | (30,7-35,3) | |
| | 750 | 23,3-26,3 (21,8-27,8) | |
| switch-off mech. electr. | 2400 | 0 | |
| | 400 | 0 | |
| Idle stop | 375 | (4,0-12,0) | |
| | 450 | max. 3,0 | |
| End stop | 400 | min. 15,5 | |
| | 500 | max. 23,5 | |

3. Dimensions

for assembly and adjustment mm

| Designation | mm |
|-------------|---------|
| K | - |
| KF | 5,7-6,0 |
| MS | 1,7-1,9 |
| SVS | 2,8 |
| A | |
| B | |

Observations

2.4 Solenoid

cut-in voltage xxx min. 10,0 V
rated voltage 12 V.

⑥

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 VWV 2,0 i 2

4. Edition

En

VE 5/10 F 2400 L 137-1 Overflow temperature 45° C

 superseded 3.85
 company: VWV
 engine: 153

0 460 405 032

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm \pm 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|--|-----------------------|---|---|---|
| 1.1 Timing device travel | 1400 | 2,4-2,8 mm | | |
| 1.2 Supply-pump pressure | 1400 | 5,0-5,6 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | - | cm ³ /1000 strokes | | |
| Full-load delivery without charge-air pressure | 1400 | 32,5-33,5 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.4 Idle regulation | 375 | 6,0-10,0 cm ³ /1000 strokes | | 2,0 (3,0) |
| 1.5 Full-speed regulation | 2650 | 6,0-12,0 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 50,0 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | - | | | |

2. Test Specifications

checking values in brackets ()

| | | | | |
|-------------------|---|---------------------------|-------------------|---------------------------|
| 2.1 Timing device | n = rev/min mm | 1000 1,3-2,1 (1,0-2,4) | 1400 (1,9-3,3) | 2400 5,1-5,9 (4,8-6,2) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 500 2,8-3,4 | | 2400 7,3-7,9 |
| Overflow delivery | n = rev/min cm ³ /10 s | 500 55-138 (40-153) | | 2400 55-138 (40-153) |

| 2.3 Fuel deliveries | | | | 3. Dimensions | |
|--------------------------------|-------------------------------------|---|---|-------------------------|--------------------------------------|
| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) | Designation | for assembly and adjustment mm |
| End stop | 2800 2650 2400 1400 750 | max. 3,0 (5,0-13,0) 27,0-29,0 (25,7-30,3) (30,7-35,3) 23,3-26,3 (21,8-27,8) | | K KF MS SVS | - 5,7-6,0 1,7-1,9 2,8 |
| switch-off mech. electr. | 2400 400 | 0 0 | | A B | |
| Idle stop | 375 450 400 500 | (4,0-12,0) max. 3,0 min. 15,5 max. 23,5 | | Observations | |
| 2.4 Solenoid | cut-in voltage | xxx min. 10,0 V | test voltage | xxx rated voltage 12 V. | |

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9.85

J22

J22

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/9 F 2400 R 138
0 460 494 131

Overflow temperature 45° C

supersedes 1.85
company: VWV
engine: 086

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|-----------------------|---|---|---|
| 1.1 Timing device travel | 1500 | 2,9-3,3 mm | | |
| 1.2 Supply-pump pressure | 1500 | 4,3-4,9 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | - | | cm ³ /1000 strokes | |
| Full-load delivery without charge-air pressure | 1500 | 31,5-32,5 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.4 Idle regulation | 475 | 6,0-10,0 cm ³ /1000 strokes | | 2,0 (3,0) |
| 1.5 Full-speed regulation | 2600 | 11,0-17,0 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 35 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | - | | | |

2. Test Specifications checking values in brackets ()

| | | | | |
|-------------------|---|---------------------------|-------------------|---------------------------|
| 2.1 Timing device | n = rev/min mm | 1000 1,3-2,1 (1,0-2,4) | 1500 (2,4-3,8) | 2400 6,1-6,9 (5,8-7,2) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 600 2,2-2,8 | | 2400 6,4-7,0 |
| Overflow delivery | n = rev/min cm ³ /10 s | 600 55-138 (40-153) | | 2400 55-138 (40-153) |

| 2.3 Fuel deliveries | | | | 3. Dimensions <small>for assembly and adjustment mm</small> | |
|---------------------|-------------------------------------|--|---|---|-----------|
| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) | Designation | |
| End stop | 2800 2600 2400 1500 600 | max. 3,0 (10,0-18,0) 26,8-28,8(25,5-30,1) (29,7-34,3) 20,2-23,2(18,7-24,7) | | K | 3,2-3,4 |
| | | | | KF | 5,7-6,0 |
| | | | | MS | 1,3-1,5 |
| | | | | SVS | 2,7 |
| | | | | * FH | 1,8-2,4 |
| switch-off | | | | A XK | 17,0-19,0 |
| electr. | 400 | 0 | | B XL | 9,8-13,2 |
| Idle stop | 475 650 1200 | max. 7,5 max. 5,0 min. 18,0 | (4,0-12,0) | Observations operating stroke (KSB) | |
| End stop | 400 500 | min. 18,0 max. 23,5 | | | |
| 2.4 Solenoid | cut-in voltage | xxx min. 10,0 V rated voltage 12 V. | | | |

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 1,6 W 2

4. Edition

En

VE 4/9 F 2400 R 138-1

Overflow temperature 45° C

supersedes 1.85
company: VWV
engine: 086

0 460 494 140

Test ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 1500 | 2,9-3,3 mm | | |
| 1.2 Supply-pump pressure | 1500 | 4,3-4,9 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | - | | cm ³ /1000 strokes | |
| Full-load delivery without charge-air pressure | 1500 | 31,5-32,5 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.4 Idle regulation | 450 | 6,0-10,0 cm ³ /1000 strokes | | 2,0 (3,0) |
| 1.5 Full-speed regulation | 2600 | 11,0-17,0 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 35 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | - | | | |

2. Test Specifications

checking values in brackets ()

| | | | | |
|-------------------|---|---------------------------|-------------------|---------------------------|
| 2.1 Timing device | n = rev/min mm | 1000 1,3-2,1 (1,0-2,4) | 1500 (2,4-3,8) | 2400 6,1-6,9 (5,8-7,2) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 600 2,2-2,8 | | 2400 6,4-7,0 |
| Overflow delivery | n = rev/min cm ³ /10 s | 600 55-138 (40-153) | | 2400 55-138 (40-153) |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|--------------------------------|-------------------------------------|--|--|
| End stop | 2800 2600 2400 1500 600 | max. 3,0 (10,0-18,0) 26,8-28,8 (25,5-30,1) (29,7-34,3) 20,2-23,2 (18,7-24,7) | |
| switch-off mech. electr. | 2400 400 | 0 0 | |
| Idle stop | 450 650 1200 | (4,0-12,0) max. 5,0 max. 7,0 | |
| End stop | 400 500 | min. 18,0 max. 23,5 | |

3. Dimensions

for assembly and adjustment mm

| Designation | mm |
|-------------|---------|
| K | 3,2-3,4 |
| KF | 5,7-6,0 |
| MS | 1,3-1,5 |
| SVS | 2,7 |
| *FH | 1,8-2,4 |
| A | |
| B | |

Observations
operating stroke (KSB)

| | | |
|--------------|----------------|---------------|
| 2.4 Solenoid | cut-in voltage | xxx min. 10 V |
| | rated voltage | 12 V |

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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 FIA 1,9 e
3. Edition

Testo ISO 4113

VE 4/9 F 2300 R 141
0 460 494 132

Overflow temperature 45° C

supersedes 10.84
company: Fiat
engine: X 8/43

DHK: 1 688 901 022/130 bar

Pour la conduite d'essai de refoulement 6x2x450 mm/1 680 750 073

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 1500 | 4,3 - 4,7 mm | | |
| 1.2 Supply-pump pressure | 1500 | 5,6 - 6,2 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | | | cm ³ /1000 strokes | |
| Full-load delivery without charge-air pressure | 1500 | 29,2 - 30,2 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.4 Idle regulation | 350 | 9,0 - 13,0 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.5 Full-speed regulation | 2500 | 11,0 - 17,0 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 55,0 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | 1500 | | | |

2. Test Specifications

checking values in brackets ()

| | | | | |
|-------------------|---|--------------------------|-------------------|---------------------------|
| 2.1 Timing device | n = rev/min mm | 800 1,7-2,5 (1,4-2,8) | 1500 (3,8-5,2) | 2300 7,1-7,9 (6,8-8,2) |
| 2.2 Supply pump | n = rev/min bar (kgf/cm ²) | 400 2,8 - 3,4 | | 2300 7,4 - 8,0 |
| Overflow delivery | n = rev/min cm ³ /10 s | 400 42-83 (27-98) | | 2300 55-138 (40-153) |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|--------------------|---|--|
| End stop | 2600 | 6,2-6,8 (6,2-6,9) | |
| | 2500 | (10,0-18,0) | |
| | 2400 | 21,0-27,0 (20,0-28,0) | |
| | 2250 | 31,0-33,4 (29,9-34,5) | |
| | 1500 | (27,4-32,0) | |
| | 1000 | 28,9-31,5 (27,9-32,5) | |
| | 600 | 30,0-33,0 (28,5-34,5) | |
| switch-off | | | |
| Idle stop | 350 | (7,0-15,0) | |
| | 400 | max. 4,0 | |
| | 540 | max. 1,5 | |
| | End stop | 300 | min. 45,0 |
| | 400 | max. 46,0 | |

3. Dimensions

for assembly and adjustment mm

| Designation | mm |
|-------------|-----------|
| K | 3,1 - 3,4 |
| KF | 5,7 - 5,9 |
| MS | 1,7 - 1,9 |
| svs | 2,8 |
| A XK | 20,2-22,2 |
| B XL | 10,3-13,7 |

Observations

2.4 Solenoid

cut-in voltage

min. 10V

rated voltage 12 V.

Test Specifications Distributor-type Fuel-injection Pumps

VE 5/10 F 2250 L 150

Overflow temperature 45° C

supersedes 7.83

company: VWV

engine: 153 T Audi 100

0 460 405 033

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04)

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 1500 | 3,1-3,5 mm | 0,75 | |
| 1.2 Supply-pump pressure | 1500 | 5,5-6,1 bar (kgf/cm ²) | 0,75 | |
| 1.3 Full-load delivery with charge-air pressure | 1500 | 43,5-44,5 cm ³ /1000 strokes | 0,75 | 2,5 |
| Full-load delivery without charge-air pressure | 500 | 21,5-22,5 cm ³ /1000 strokes | 0 | |
| 1.4 Idle regulation | 375 | 6,0-10,0 cm ³ /1000 strokes | 0 | 2,0 |
| 1.5 Full-speed regulation | 2525 | 9,0-15,0 cm ³ /1000 strokes | 0,75 | |
| 1.6 Start | 100 | min.50,0 cm ³ /1000 strokes | 0 | |
| 1.7 Load-dependent port-closing | - | | | |

2. Test Specifications

checking values in brackets ()

| | | | | |
|-------------------------------------|---|-------------------------|-------------------|--------------------------|
| 2.1 Timing device LDA = 0,75 bar | n = rev/min mm | 850 1,1-1,9(0,8-2,2) | 1500 (2,6-4,0) | 2250 5,4-6,2(5,1-6,5) |
| 2.2 Supply pump LDA = 0,75 bar | n = rev/min bar (kgf/cm ²) | 500 3,2-3,8 | | 2250 7,3-7,9 |
| Overflow delivery | n = rev/min cm ³ /10 s | 500 55-138(40-153) | | 2250 55-138(40-153) |

2.3 Fuel deliveries

| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|--------------------|---|--|
| End stop | 2700 | max. 3,0 | 0,75 |
| | 2525 | | (8,0-16,0) 0,75 |
| | 2250 | 37,0-39,0 | (35,8-40,2) 0,75 |
| | 1500 | | (41,8-46,2) 0,75 |
| | 850 * | 34,5-35,5 | (32,7-37,3) 0,4 |
| | 500 | | (19,0-25,0) 0 |
| switch-off | | | |
| electr. | 400 | 0 | |
| Idle stop | 375 | max. 3,0 | (4,0-12,0) |
| | 450 | | |
| End stop | 400 | min. 18,0 | |
| | 500 | max. 25,0 | |

3. Dimensions

for assembly and adjustment mm

| Designation | mm |
|-------------|---------|
| K | - |
| KF | 5,7-6,0 |
| MS | 1,7-1,9 |
| SVS | 4,2 |
| A | |
| B | |

Observations
Adjust TAS only at full LDA pressure of 0,75 bar.
Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46).

2.4 Solenoid cut-in voltage xxx min. 10 V
test voltage xxxxxx rated voltage 12 V.

Test Specifications Distributor-type Fuel-injection Pumps

VE 5/10 F 2250 L 150-1

0 460 405 034

supersedes 7.83

company: VWV

engine: 153 T Audi 100 Aut.

Overflow temperature 45° C

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04)

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|--|--------------------|---|--|--|
| 1.1 Timing device travel | 1500 | 3,1-3,5 mm | 0,75 | |
| 1.2 Supply pump pressure | 1500 | 5,5-6,1 bar (kgf/cm ²) | 0,75 | |
| 1.3 Full-load delivery without charge-air pressure | 1500 | 43,5-44,5 cm ³ /1000 strokes | 0,75 | 2,5 |
| Full-load delivery with charge-air pressure | 500 | 21,5-22,5 cm ³ /1000 strokes | 0 | |
| 1.4 Idle speed regulation | 375 | 6,0-10,0 cm ³ /1000 strokes | 0 | 2,0 |
| 1.5 Start | 2525 | 9,0-15,0 cm ³ /1000 strokes | 0,75 | |
| 1.6 Full-load speed regulation | 100 | min.50,0 cm ³ /1000 strokes | 0 | |
| 1.7 Load-dependent start of delivery | - | | | |

2. Test Specifications checking values in brackets ()

| | | | | |
|-------------------|----------------------------|------------------|-----------|------------------|
| 2.1 Timing device | n = rev/min | 850 | 1500 | 2250 |
| LDA = 0,75 bar | mm | 1,1-1,9(0,8-2,2) | (2,6-4,0) | 5,4-6,2(5,1-6,5) |
| 2.2 Supply pump | n = rev/min | 500 | | 2250 |
| LDA = 0,75 bar | bar (kgf/cm ²) | 3,2-3,8 | | 7,3-7,9 |
| Overflow delivery | n = rev/min | 500 | | 2250 |
| | cm ³ /10 s | 55-138(40-153) | | 55-138(40-153) |

| 2.3 Fuel deliveries | Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) | |
|---------------------|---|--------------------|---|--|------|
| | End stop | 2700 | max. 3,0 | 0,75 | |
| | | 2525 | | 0,75 | |
| | | 2250 | 37,0-39,0 | (8,0-16,0) | 0,75 |
| | | 1500 | | (35,8-40,2) | 0,75 |
| | | 850 * | 34,5-35,5 | (41,8-46,2) | 0,75 |
| | | 500 | | (32,7-37,3) | 0,4 |
| switch-off | mech. electr. | 2250 | 0 | | |
| | | 400 | 0 | | |
| Idle stop | End stop | 375 | | (4,0-12,0) | |
| | | 450 | max. 3,0 | | |
| | | 400 | min. 18,0 | | |
| | | 500 | max. 25,0 | | |
| 2.4 Solenoid | cut-in voltage min. 10 V rated voltage 12 V. | | | | |

3. Dimensions

for assembly and adjustment mm

| Designation | mm |
|-------------|---------|
| K | - |
| KF | 5,7-6,0 |
| MS | 1,7-1,9 |
| SVS | 4,2 |
| A | |
| B | |

Observations
Adjust TAS only at full LDA pressure of 0,75 bar.
Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46).

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/9 F 2250 R 158 Overflow temperature 45° C
 0 460 494 145
 DHK: 1 688 901 022/130
 Fuel injection test tubing 1 680 750 073 6x2x450 mm

supersedes 3.85
 company: Renault
 engine: J 85-706

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|---|--------------------|---|--|--|
| 1.1 Timing device travel | 1400 | 4,4 - 4,8 mm | | |
| 1.2 Supply-pump pressure | 1400 | 4,9 - 5,5 bar (kgf/cm ²) | | |
| 1.3 Full-load delivery with charge-air pressure | - | - cm ³ /1000 strokes | | |
| Full-load delivery without charge-air pressure | 1400 | 34,5 - 35,5 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.4 Idle regulation | 400 | 7,0 - 11,0 cm ³ /1000 strokes | | 2,5 (3,0) |
| 1.5 Full-speed regulation | 2400 | 17,0 - 23,0 cm ³ /1000 strokes | | |
| 1.6 Start | 100 | min. 52,0 cm ³ /1000 strokes | | |
| 1.7 Load-dependent port-closing | 1400 | | | |

2. Test Specifications checking values in brackets ()

| | | | | |
|-------------------|----------------------------|-------------------|-----------|-------------------|
| 2.1 Timing device | n = rev/min | 1000 | 1400 | 2000 |
| | mm | 2,6-3,4 (2,3-3,7) | (3,9-5,3) | 6,7-7,5 (6,4-7,8) |
| 2.2 Supply pump | n = rev/min | 1000 | | 2000 |
| | bar (kgf/cm ²) | 3,9 - 4,5 | | 6,5 - 7,1 |
| Overflow delivery | n = rev/min | 500 | | 2250 |
| | cm ³ /10 s | 55-138 (40-153) | | 55-138 (40-153) |

| 2.3 Fuel deliveries | | | |
|---------------------|---|---|--|
| Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
| End stop | 2550 | max. 5,0 | |
| | 2400 | (16,0-24,0) | |
| | 2200 | 36,0-38,0 (34,7-39,3) | |
| | 2100 | 36,5-38,5 (35,2-39,8) | |
| | 1400 | (32,7-37,3) | |
| | 1000 | 33,5-36,5 (32,7-37,3) | |
| switch-off | 2500 | 0 | |
| Idle stop | 650 | max. 5,0 | |
| | 400 | (5,0-13,0) | |
| End stop | 320 | min. 45,0 | |
| | 430 | max. 45,0 | |
| 2.4 Solenoid | cut-in voltage min. 10 V rated voltage 12 V. | | |

| 3. Dimensions <small>for assembly and adjustment mm</small> | |
|---|-----------|
| Designation | |
| K | 3,2 - 3,4 |
| KF | 5,7 - 5,9 |
| MS | 1,4 - 1,6 |
| SVS | max. 3,6 |
| A XK | 18,8-20,8 |
| B XL | 9,4-12,8 |
| Observations | |

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/9 F 2150 L 202
0 460 494 167

Overflow temperature 45° C

supersedes 3.85
company: Motori VM
engine: HR 488 HJ

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

| 1. Settings | Rot. speed rev/min | Settings | Charge-air press. bar (kgf/cm ²) | Difference in delivery cm ³ |
|--|-----------------------|---|---|---|
| 1.1 Timing device travel | 1500 | 4,3 - 4,7 mm | 0,8 | - |
| 1.2 Supply-pump pressure | 1500 | 4,5 - 5,1 bar (kgf/cm ²) | 0,8 | |
| 1.3 Full-load delivery with charge-air pressure | 1500 | 48,0 - 49,0 cm ³ /1000 strokes | 0,8 | 2,5 |
| Full-load delivery without charge-air pressure | 750 | 36,0 - 37,0 cm ³ /1000 strokes | 0 | |
| 1.4 Idle regulation | 400 | 11,0 - 15,0 cm ³ /1000 strokes | 0 | 2,5 |
| 1.5 Full-speed regulation | 2420 | 12,0 - 18,0 cm ³ /1000 strokes | 0,8 | |
| 1.6 Start | 100 | 32,0 - 52,0 cm ³ /1000 strokes | 0 | |
| 1.7 Load-dependent port-closing | 1600 | - | 0,8 | |

2. Test Specifications checking values in brackets ()

| | | | | |
|-------------------|----------------------------|-------------------|-----------------|-------------------|
| 2.1 Timing device | n = rev/min | 1000 | 1500 | 2150 |
| LDA=0,8 bar | mm | 1,3-2,1 (1,0-2,4) | (3,8-5,2) | 7,6-8,4 (7,3-8,7) |
| 2.2 Supply pump | n = rev/min | 750 | 1000 | 2150 |
| LDA=0,8 bar | bar (kgf/cm ²) | 2,0 - 2,6 | 2,8 - 3,4 | 6,7 - 7,3 |
| Overflow delivery | n = rev/min | 750 | 2150 | |
| LDA=0,8 bar | cm ³ /10 s | 42-83 (27-98) | 55-138 (40-153) | |

| 2.3 Fuel deliveries | Speed control lever | Rot. speed rev/min | Fuel delivery cm ³ /1000 strokes | Charge-air press. bar (kgf/cm ²) |
|---------------------|---------------------|-----------------------|--|---|
| End stop | | 2550 | max. 2,0 | 0,8 |
| | | 2420 | (11,0-19,0) | 0,8 |
| | | 2270 | 28,5-35,5 (28,0-36,0) | 0,8 |
| | | 2150 | 40,0-43,0 (37,5-45,5) | 0,8 |
| | | 1500 | (46,8-51,2) | 0,8 |
| | | 750 | 48,0-51,0 (46,5-52,5) | 0,8 |
| | | 750* | 45,5-46,5 (43,0-49,0) | 0,4 |
| | | 750 | (33,5-39,5) | 0 |
| switch-off | | | | |
| Idle stop | End stop | 400 | (9,0-17,0) | |
| | | 500 | 2,0-8,0 | |
| | | 700 | max. 4,0 | |
| | | 400 | min. 36 | |
| | 500 | max. 37 | | |

3. Dimensions

for assembly
and adjustment
mm

| Designation | mm |
|-------------|-----------|
| K | 3,2 - 3,4 |
| KF | 5,2 - 5,4 |
| MS | 0,7 - 0,9 |
| SVS | 3,2 |
| A | |
| B | |

Observations

* LDA-stroke = 6,4 mm

| | | |
|--------------|----------------|---------------------|
| 2.4 Solenoid | cut-in voltage | min. 10 V |
| | | rated voltage 12 V. |

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 13

1. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1100 AOC 745-2 L

supersedes -

Komb.-Nr. 0 400 876 328

company Daimler-Benz
engine OM 352 A
92 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
(2,10-2,30) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1080 | 11,1+0,1 | 6,5 - 6,6 | 0,3 (0,45) | | | |
| 350 | 7,6-7,8 | 0,8 - 1,4 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| Loose | 800 | 0,3-1,0 | - | - | - | ca. 35 | 350 | 7,7 | 1080 | 11,1-11,2 |
| | X = | | | | | | 100 | min. 19,5 | 850 | 11,7-11,8 |
| ca. 56 | 10,1 | 1130-1140 | | | | | 350 | 7,6 - 7,8 | 1000 | 11,2-11,4 |
| 2a | 4,0 | 1220-1250 | | | | | 480 - | 540 = 2,0 | | |
| | 1325 | 0,3 - 1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle 5 | | 4a Idle stop | |
|-----------------------------|--------------|------------------------------------|---|----------------------------------|------------------------------------|-------------------------------|------------------------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | rev/min 1 | cm ³ /1000 strokes 2 | Note: changed to ... rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| | 1080 | 65,0 - 66,0 (63,0 - 68,0) | 1130-1140* | 850 | 65,0 - 67,0 (62,5 - 69,5) | 100 | 78,0-88,0 (75,0-91,0) | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.85

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Testoil-ISO 4113

K6

K6

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 3

En 9. Edition

PES 6 A 90 D 410 RS 2293
Komb.-Nr. 0 400 876 260

RSV 350-1300 A 0 B 1105 DL
A 0 C 1105 L

supersedes 1.85
company Daimler-Benz
engine OM 352 A
92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1300 | 10,0+0,1 | 6,7-6,8 | 0,3(0,45) | | | |
| 350 | 6,9-7,1 | 0,8-1,2 | 0,2(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

Test 01/80 413

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | | loose | 350 | 7,0 | 1300 | 10,0-10,1 |
| | x = 5,0 | | | | | | 100 | min. 19,0 | 500 | 10,3-10,5 |
| ca. 65 | 9,0 | 1340-1350 | | | | | 350 | 6,9-7,1 | 750 | 10,3-10,4 |
| 2a | 4,0 | 1420-1450 | | | | | 460-520 | = 2,0 | 1140 | 10,0-10,1 |
| | 1540 | 0,3-1,7 | | | | | 700 | max. 1,0 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|-----------------------------|-------------------------------|--------------------------|---------|----------------------------------|-------------------------------|--------------------------|-------------------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1300 | 67,0-68,0 (65,0-70,0) | 1340-1350* | 750 | 58,0-60,0 (55,5-62,5) | 100 | 78,0-88,0 (75,0-91,0) | - | - | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.85

K7

K7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 s 1

3. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1300 A0 C 1107 L

supersedes 4.77

company Daimler-Benz

engine OM 352

81 kW

Komb.-Nr. 0 400 876 263

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC) RW = 9,0-12,0 mm

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1300 | 8,7-8,8 | 5,0-5,1 | 0,3(0,45) | | | |
| 350 | 6,9-7,1 | 0,5-1,1 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 25 | 350 | 6,5 | 1300 | 8,7-8,8 |
| | x = | | | | | | 100 | min.19,0 | 800 | 9,5-9,7 |
| ca. 63 | 7,7 | 1340-1350 | | | | | 350 | 6,9-7,1 | 500 | 9,8-9,9 |
| 2a | 4,0 | 1385-1415 | | | | | 525-585 | = 2,0 | | |
| | 1550 | 0,3-1,7 | | | | | 700 | max.1,0 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|-------------------------------|--------------------------|---------|----------------------------------|---------|-------------------------------|---------|-----------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1300 | 50,0-51,0 (48,0-53,0) | 1340-1350* | 800 | 50,5-53,5 (48,5-55,5) | 100 | 13,7-14,3 mm RW | 350 | 7,0 | |
| | | | 500 | 47,5-49,5 (45,5-51,5) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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K8

K9

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 18,3 h

1. Edition

PE 10 P 120 A 320 LS 3829 RQV 350-900 PA 493-4
1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company Daimler-Benz
engine: OM 423 LA
309 kW
Komb.-Nr. 0 401 849 714

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0 - 4,1 \\ (3,95 - 4,15) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 880 | 10,8+0,1 | 16,9-17,1 | 0,5 (0,8) | | | |
| 350 | 4,6-4,8 | 1,4-2,0 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 900 | 15,2-17,8 | - | - | - | ca. 13 | 100 | min. 6,5 | 350 | 1,2-1,3 |
| ca. 63 | 9,8 | 915-925 | | | | | 350 | 4,6-4,8 | 400 | 1,7-2,1 |
| | 4,0 | 945-975 | | | | | | | 600 | 3,1-4,2 |
| | 1050 | 0-1,5 | | | | 350-450 | | | 900 | 8,2-8,4 |
| | | | | | | | | | 970 | 9,9 |

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA | 0,7 bar | 915-925* | LDA | 0,7 bar | 100 | 140,0-160,0 | - | - |
| 880 | 169,0-171,0 (166,0-174,0) | | 600 | 163,0-167,0 (160,0-170,0) | | (136,0-164,0) | | |
| LDA | 0,7 bar | | LDA | 0 bar | | | | |
| 880 | 84,0-87,0 | | 500 | 138,0-140,0 (135,0-143,0) | | | | |
| ** | (81,0-84,0) | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

** Adjusted at the inner lever of the reduced-delivery stop.

9.85

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Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

MB 18,3 h

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 10 P..LS 3829 + RQV..PA 493-4 | 0,70 | 0 0,42 | 10,8-10,9 9,9-10,1 10,5-10,6 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 h 1

1. Edition

En

PES 4 A 90 D 410 RS 2294

RSV 350-1300 A0B 1150-2 L

supersedes
company Daimler-Benz
engine OM 314

Komb.-Nr. 9 400 085 251

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1300 | 10,0+0,1 | 6,2-6,3 | 0,3 (0,5) | | | |
| 350 | 7,1-7,3 | 1,0-1,4 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 20 | 350 | 6,7 | 1300 | 10,0-10,1 |
| | x = 3,0 | | | | | | 100 | min.19,0 | 500 | 10,0-10,2 |
| ca. 50 | 9,0 | 1340-1350 | | | | | 350 | 7,1-7,3 | 400 | 11,6-11,8 |
| (2a) | 4,0 | 1390-1420 | | | | | 430-500 | = 2,0 | | |
| | 1500 | 0,3-1,7 | | | | | 700 | max.1,0 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. | | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|-----------------------------|-----------------------|-----------------------------|-------------------------------|----------------------------------|-------------------------------|--------------------------|-------------------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | Note: changed to ...) | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 1300 | 1340-1350* | - | - | 100 | 14,2-14,8 mm RW | - | - | | |
| | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

BOSCH

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K11

K11

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 4

2. Edition

En

PES 4A 90 D 410 RS 2294 RSV 350-1400 A0B 2006L
Komb.-Nr. 0 400 874 218 AOC 2006 L

supersedes 10.32
company Daimler-Benz
engine OM 314
63 kW (85PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1380 | 10,4+0,1 | 6,4-6,5 | 0,3(0,45) | | | |
| 350 | 9,2-9,4 | 2,4-3,0 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| ① Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | ④ Control-lever deflection in degrees 7 | Lower rated speed | | ③ Torque control | |
|---|--------------------|------------|--------------------------|---|---|--|-------------------|-----------|------------------|----|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 31 | 350 | 9,3 | - | - |
| ca. 62 ②a | X= | | | | | | 100 | min. 19,0 | | |
| | | | | | | | 350 | 9,2-9,4 | | |
| | | | | | | | 510-570 | = 2,0** | | |
| | | | | | | | 650 | max. 1,0 | | |

** Set idle-speed auxiliary spring at 2 mm control-rod travel, then turn back 1/2 turn.

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop Test oil temp. 40°C (104°F) | | ⑥ Rotational-speed limit Note changed to) rev/min | ③a Fuel delivery characteristics | | Starting fuel delivery idle | | ④a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|--------------------------------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1380 | 63,5-64,5 (61,5-66,5) | 1420-1430* | - | - | 100 | 14,7-15,3 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.35

K12

K12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 p 2

1. Edition

En

PES 4 A 90 D 410 RS 2294

RSV 750-1400 AOC 2032-1 L

Komb.-NR. 0 400 874 222

supersedes-

company: Daimler-Benz

engine: OM 314

62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1345 | 10,5 + 0,1 | 6,8 - 6,9 | 0,3 (0,15) | | | |
| 750 | 5,9 - 6,1 | 1,7 - 2,3 | 0,2 (0,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|--------------------|-----------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | mm 2 | mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 30 | 750 | 6,0 | 450 | 12,2+0,2 |
| | X = 3,75 | | | | | | 100 | min. 19,5 | 600 | 10,5+0,2 |
| ca. 51 | 9,5 | 1385-1395 | | | | | 750 | 5,9-6,1 | | |
| 2a | 4,0 | 1420-1450 | | | | | 765 - 795 | = 2,0 | | |
| | 1500 | 0,3 - 1,7 | | | | | 820 | max. 1,0 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit. Note: changed to ... | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|------------------------------------|--|----------------------------------|------------------------------------|-----------------------------|--|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1345 | 68,0 - 69,0 (66,0 - 71,0) | 1385-1390* | - | - | 100 | 73,0-83,0 (70,0-86,0) = 14,3-14,7 mm RW | 750 | 6,0 |

Checking values in brackets

* 1 mm less control rod travel than col 2

9.85

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K13

K43

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 h 2

1. Edition

En

PES 4 A 90 D 410 RS 2294

RSV 400-1200 AOB 2188 L

supersedes
company Daimler-Benz
OM 314
engine

Komb.-Nr. 9 400 085 233

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25} (2,10-2,30) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1200 | 10,0+0,1 | 6,2 - 6,3 | 0,3 (0,5) | | | |
| 400 | 7,1-7,2 | 1,0 - 1,4 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Degree of deflection of control lever | Upper rated speed rev/min | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | Lower rated speed | | 3 Torque control | |
|--|---------------------------|-------------------------------|--------------------------|---|---|--|-------------------|-----------------------|---------------------|-----------------------|
| | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 24 | 400 | 6,7 | 1200 | 10,0-10,1 |
| | X = 3,0 | | | | | | 100 | min. 19,0 | 550 | 10,0-10,2 |
| ca. 49 2a | 9,0 | 1240-1250 | | | | | 400 | 7,1-7,3 | 450 | 11,6-11,8 |
| | 4,0 | 1295-1325 | | | | | 480 - 540 = 2,0 | | | |
| | 1400 | 0,3 - 1,7 | | | | | 700 | max. 1,0 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ...) | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1200 | 61,5 - 62,5 (59,5 - 64,5) | 1240-1250* | - | - | 100 | 14,2-14,8 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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K14

K14

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 6,1 g

5. Edition

En

Testoil-ISO 4113

PES 6 A 85 D 410/3 RS 2415 RQ 300/1250 AB 935 DL
Komb.-Nr. 0 400 856 024

supersedes 9.84
company: KHD
engine: BF 6 L 913 T
96 kW
bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,90-2,00 \\ (1,85-2,05) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1250 | 12,1+0,1 | 8,0 - 8,1 | 0,3(0,45) | | | |
| 300 | 8,3-8,5 | 0,9 - 1,5 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ① | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|--------------|--|-------------------------------|--------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 800 | 19,2-20,8 | 800 | 20,0 | 11,1 | 1295-1310 | 300 | 8,4 | 100 | min. 9,8 | 1250 | 12,1-12,2 |
| VH = | max. 46° | | | 4,0 | 1370-1400 | | | 300 | 8,3-8,5 | 800 | 13,3-13,4 |
| | | | | 1500 | 0 - 1,0 | | | 570-610 | =2,0 | 910 | 13,0-13,2 |
| | | | | | | | | | | 1050 | 12,4-12,7 |

Torque-control travel on flyweight assembly dimension $\alpha = 0,4$ mm Speed regulation: At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|-------------------------------------|---------------------|----------------------------------|-------------------------------------|--|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm Control rod travel 7 |
| 1250 | 80,0 - 81,0 (78,0 - 83,0) | - | 800 | 85,0-87,0 (82,5-89,5) | - | - |

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 i

5. Edition

En

PES 6 A 85 D 410/3 RS 2415

RQV 300-1250 AB 1131 L

supersedes 3.84

Komb.-Nr. 0 400 836 023

company KHD

engine: BF 6 L 913 T
96 KW bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 - 2,0$
($1,95 - 2,05$) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1250 | 12,0+0,1 | 7,8 - 7,9 | 0,3(0,45) | | | |
| 300 | 8,3-8,5 | 0,9 - 1,5 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|----------------------|-------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 385 | 15,2-17,8 | - | - | - | ca. 17 | 100 | min. 10,0 | 250 | 0,9-1,1 |
| ca. 65 | 11,0 4,0 1525 | 1290-1300 1400-1430 0-1,0 | | | | 450-550 | 300 645-705 = 2,0 | 8,3-8,5 = 2,0 | 580 920 1250 | 3,9-4,1 5,4-5,6 7,8 |

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | Torque-control | | |
|---|------------------------------------|--|---|------------------------------------|---|---|--------------------|----------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1250 | 78,0-79,0 (76,0-81,0) | 1290-1300* | 600 | 71,5-73,5 (69,0-76,0) | 100 | 105,0-115,0 (102,0-118,0) = 17,4- 17,8 mm RW | 1250 600 850 | 12,0+0,1 12,8+0,1 12,3+0,2 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

K16

K16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 a 3

1. Edition

En

PES 6 A 85 D 410/3 RS 2415 RS 325/1650 AOC 2087 L

Komb.-Nr. 0 400 866 116

supersede

company KHD

engine BF 6 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,9-2,0}{(1,85-2,05)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1250 | 11,7+0,1 | 7,9-8,0 | 0,3(0,45) | | | |
| 325 | 7,9-8,1 | 1,2-1,8 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control rev/min 10 | Control rod travel mm 11 |
|---|-------------------------------|---------------------------------------|--------------------------|---|---|--|-------------------|-------------------------------|-----------------------------------|--------------------------------|
| | | | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | | |
| loose | 800 | 0,3-0,7 | - | - | - | | 325 | 6,0 | 1600 | 11,7-11,8 |
| VH ca.50 FH max. | x = 4,0 10,7 4,0 | 1650-1660 1730-1760 | | | | | 325 460-520 | 5,9-6,1 = 2,0 | 440 550 | 12,9-13,5 11,7-11,9 |
| 2a | 1900 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min 3 | 3a Fuel delivery characteristics | | Starting fuel delivery (5) Idle | | 4a Idle stop | |
|--|------------------------------------|---|----------------------------------|------------------------------------|---------------------------------|------------------------------------|--------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1250 | 78,5-79,5 (76,5-81,5) | 1650-1660* | 800 | 69,0-71,0 (66,5-73,5) | 100 | 19,5-21,0 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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K17

K17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 K 1

1. Edition

En

PES 6 A 95 D 410 RS 2416
Komb.-Nr. 0 40G 876 198

RSV 300-1150 A 8 C 616 DL

supersedes
company KHD
engine F 6 L 413 FR
106 kW/2300 min⁻¹
fitting 300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,90-2,00 \\ (1,85-2,05) \end{matrix}$ mm (from BDC; RW = 9,0-12,0 mm)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1140 | 8,2-8,3 | 7,6-7,7 | 0,3 (0,6) | | | |
| 300 | 5,9-6,1 | 1,4-2,0 | 0,35(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|----------------------------|------------------------------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 20 | 300 | 5,5 | 1140 | 8,2-8,3 |
| | x = 5,0 | | | | | | 300 | 5,9-6,1 | 500 | 9,1-9,2 |
| | | | | | | | 520-580 | = 2,0 | 750 | 8,9-9,1 |
| ca.55 | 7,2 | 1180-1190 | | | | | | | 900 | 8,5 |
| 2a | 4,0 | 1215-1245 | | | | | | | | |
| | 1325 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat. Note: changed to ... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery idle | | 4a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | 3 | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1140 | 76,0-77,0 (74,0-79,0) | 1180-1190 * | - | - | 100 | 111,5-121,5 (108,5-124,5) | - | - |
| | | | | | | = 13,6- 14,0 mm RW | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

9.85

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K18

K18

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 s

1. Edition

En

PES 6 A 95 D 410 RS 2416

RQ 300-1250 AB 1211 L

Komb.-Nr. 0 400 846 544

supersedes -
company: KHD
engine: BF 6 L 413 FR
123 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,75-1,85 \\ (1,70-1,90) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1250 | 10,0+0,1 | 9,9-10,1 | 0,35(0,6) | | | |
| 300 | 6,4-6,6 | 1,9-2,5 | 0,35(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1280 | 15,2-17,8 | - | - | - | ca. 18 | 100 | min. 8,0 | 250 | 1,0-1,2 |
| ca. 50 | 9,0 4,5 1500 | 1290-1300 1350-1380 0 - 1,0 | | | | 370-485 | 300 | 6,4-6,6 | 500 1000 1250 | 3,2-3,5 6,2-6,4 8,3 |

Torque control travel a = 0,30 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|------------------------------------|---|--|------------------------------------|--|--|---------------------------|--------------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1250 | 99,0-101,0 (97,0-103,0) | 1290-1300 * | 600 | 91,5-94,5 (89,0-97,0) | 100 | 120,0-130,0 (117,0-133,0) = 14,2-14,6 mm RW | 1250 600 715 765 | 10,0+0 10,2+0 10,1+0 10,0+0 |
| | | | | | 300 | 19,0-25,0 (16,5-27,5) | | |

Checking values in brackets

* 1 mm less control rod travel

9.85

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K19

K4)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 9,2 a

6. Editione

En

PES 5 A 95 D 410 LS 2426 Z

RQ 250/1150 AB 839 DL

Komb.-Nr. 0 400 845 022 = MAN-Nr. 1-7528

supersedes 3.84

company: MAN

engine: D 2555 M/MF

124 kW/2300 min⁻¹

1 - 3 - 5 - 4 - 2 je 72° ± 0,5° (+ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,3 - 1,4 \\ (1,25 - 1,45) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 9 | 7,5 - 8,0 | 0,4 | | | |
| | 6 | 3,2 - 4,2 | | | | |
| 200 | 6 | 0,5 - 1,4 | | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | | Full-load speed regulation Setting point rev/min 3 | | Control rod travel mm 4 | | Test specifications Control rod travel mm 5 | | rev/min 6 | | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | | Test specifications rev/min 9 | | Control rod travel mm 10 | | Torque control rev/min 11 | | Control rod travel mm 12 | | | | | | | | | |
|---|-----------|-------------------------------|------|---|-----------|-------------------------------|---|--|---------|--------------|-----------|--|-----------|-------------------------------|---------|-------------------------------------|-----------|--------------------------------|---------|---------------------------------|-----------|--------------------------------|-------|-----|---|--|--|--|--|--|--|
| 600 | 15,7-16,3 | 600 | 16,0 | 1170 | 15,0-15,4 | 540 | 0 | 150 | 6,6-8,1 | 880 | 15,8-16,0 | 1200 | 10,0-14,4 | 250 | 4,5-6,7 | 1020 | 14,4-15,6 | 350 | 1,5-4,0 | 1000 | 15,3-15,4 | 1250 | 0 - 9 | 440 | 0 | | | | | | |
| | | | | 1320 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: 1190 - 1205 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | | Starting fuel delivery Idle speed rev/min 6 | | Control rod travel cm ³ /1000 strokes/mm 7 | |
|---|----------------------------------|-------------------------------------|---|----------------------------------|----------------------------------|---|-------------------------------------|-------------------------------------|----------------------------|--|--|---|--|
| 1150 | 100,5 - 102,5 (98,5 - 104,5) | - | - | 800 | 104,0 - 107,0 (102,0 - 109,0) | 100 | 146,5-156,5 =15,7- 16,3 mm RW | 500 | max. 103,5 (max. 105,5) | | | | |
| | | | | | | | | | | | | | |

Checking values in brackets

10.85

Test specifications

K20

K20

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 CAS 8,3 c

1. Editione

En

PES 6 A 85 D 420 LS 2460
Komb.-Nr. 9 400 230 001

RSV 375-1100 A2B 2021 DR

supersedes

company Case
engine W 24 C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 13,9+0,1 | 10,2-10,3 | 0,3 (0,5) | | | |
| 375 | 7,3-7,5 | 1,4-2,0 | 0,2 (0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|--------------------------|----------------------------------|--------------------------|---|---|-------------------------------------|---------|--------------------------|------------------|--------------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 24 | 375 | 6,9 | 1100 | 13,9-14,0 |
| | X = | | | | | | 150 | 19,0-21,0 | 700 | 13,9-14,0 |
| ca. 48 | 12,9 | 1140-1150 | | | | | 375 | 7,3-7,5 | | |
| 2a | 4,5 | 1225-1255 | | | | | 430-470 | = 4,7 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|-------------------------------|------------------------------|----------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------|--------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ... rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| rev/min | cm ³ /1000 strokes | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1100 | 101,5-102,5 (100,0-104,0) | 1140-1150* | 700 | 100,5-103,5 (99,0-105,0) | 100 | 120,0-140,0 | - | - |
| | | | | | 375 | 14,0-20,0 (12,0-22,0) | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.85

K21

K21

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 5,7 v3 **40**

10. Editione

En

PES 6 A 90 D 410 RS 2596 RSV 575-1250 A 1 B 618 L
Komb.-Nr. 0 400 876 295 A 1 C 618 L

supersedes **9.84**
company **Daimler-Benz**
engine **OM 352 A**
115 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,0-2,1}{(1,95-2,15)}$ mm (from BDC) RW = 9,0 - 12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1200 | 13,2+0,1 | 7,8-7,9 | 0,3(0,45) | | | |
| 575 | 7,6-7,8 | 0,9-1,5 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

Test 01-150 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees | Lower rated speed | | 3 Torque control | |
|--|--------------------|------------|--------------------------|---|---|---------------------------------------|-------------------|-----------|------------------|----|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca.25 | 575 | 7,7 | - | - |
| | | X = 4,0 | | | | | 100 | min. 19,0 | | |
| ca.55 | 12,2 | 1250-1255 | | | | | 575 | 7,6-7,8 | | |
| 2a | 4,0 | 1274-1291 | | | | | 585-645 | = 2,0 | | |
| | 1445 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery 5 Idle | | 4a Idle stop | |
|--|-------------------------------|--|----------------------------------|-------------------------------|-------------------------------|---|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1230 | 77,5-78,5 (75,5-80,5) | 1250-1255* | - | - | 100 | 80,0-90,0 (77,0-93,0) =16,0- 16,6 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v 2

7. Editione

En

PES 6 A 90 D 410 RS 2596
Komb.-Nr. 0 400 846 443

RQV 300-1400 AB 1066-1 DL

supersedes 5.84

company: Daimler-Benz

engine: OM 352 A

126 kW (171 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)
2,00-2,10 mm (from BDC) RW = 9,0-12,0 mm

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1400 | 12,4+0,1 | 7,4-7,5 | 0,3(0,45) | | | |
| 300 | 8,9-9,1 | 0,9-1,5 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------|--------------------------|---------------------------------------|------------|--------------------------|---------------------------|--------------------------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1500 | 15,2-17,8 | - | - | - | ca. 23 | 100 300 | min. 10,5 8,9-9,1 | 300 500 750 1500 | 0,8-1,3 2,3-2,8 4,1-4,3 8,6 |
| ca. 63 | 11,4 4,0 1750 | 1440-1450 1580-1610 0-1,0 | | | | 590-660 | | | | |

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------------|--|--|-------------------------------------|---|--|-----------------------------|--|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1400 | 0,7 bar 74,0-75,0 (72,0-77,0) | 1440-1450* | LDA 500 | 0,7 bar 69,0-71,0 (66,5-73,5) | 100 | 73,0-83,0 (70,0-86,0) = 15,8-16,2 mm RW | 1400 500 1000 1200 | 12,4+0,1 13,6+0,1 13,1+0,2 12,5+0,3 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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K23

1083

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 v 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | | Control rod travel | diminution |
|---|----------------------|----------------------|-----|--------------------|------------|
| | Gauge pressure = bar | Gauge pressure = bar | bar | mm | difference |
| PES 6A .. RS 2596 mit .. AB1066-1 DL | 0,70 | 0 | | 13,6 - 13,7 | |
| | | 0,35 | | 12,3 - 12,4 | |
| | | 0,20 | | 13,2 - 13,3 | |
| | | | | 12,5 - 12,7 | |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 v 11

4. Edition

En

PES 6 A 90 D 410 RS 2596 RSV 350-1400 AOB 1141 L
Komb.-Nr. 0 400 876 293 ..AOC 1141 L

supersedes 3.84
company Daimler-Benz
engine OM 352 A
123 kW (157 PS) (1)
Schmidt rotary (2)
snow plough for
high altitudes

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery (1) cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery (2) cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|--|--|--------------------------|--|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1400 | 11,9±0,1 | 7,4-7,5 | 0,3(0,45) | 9,8-9,9 | 5,4-5,6 | |
| 350 | 7,9-8,1 | 0,8-1,4 | 0,2(0,4) | 7,9-8,1 | 0,8-1,4 | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | | 3 | | | | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | - | - | - | loose | 350 | 8,0 | 1380 | 11,9-12,0 |
| | x = 6,0 | | | | | | 100 | min. 16,0 | 600 | 12,6-12,7 |
| | | | | | | | 350 | 7,9-8,1 | 1050 | 12,6-12,7 |
| | | | | | | | 530-640 | = 2,0 | 1260 | 11,9-12,0 |
| ca. 64 | 10,9 | 14 0-14 0 | | | | | | | | |
| 2a | 4,0 | 1520-1550 | | | | | | | | |
| | 1680 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|--|--------------------------|---------|-------------------------------------|---------|---|---------|-----------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ... | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| LDA 1400 | (1) 0,7 bar 74,0-75,0 (72,0-77,0) | 1420-1430* | LDA 600 | 0,7 bar 65,5-68,5 (63,0-71,0) | 100 | 78,0-88,0 (75,0-91,0) = 16,3 - 16,7 mm RW | - | - | |
| | | | LDA 500 | 0 bar 48,5-49,5 (46,5-51,5) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil 30 A 113

L1

L1

B. Governor Settings

| ① Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | ④ Control-lever deflection in degrees 7 | Lower rated speed | | ③ Torque control | |
|---|--------------------|------------|--------------------------|---|---|--|-------------------|-----------|------------------|-----------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | mm | rev/min | mm |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 31 | 350 | 8,0 | 1200 | 9,8-10,0 |
| | x = 6,0 | | | | | | 100 | 19,0-21,0 | 650 | 11,3-11,5 |
| ca. 74 | 8,8 | 1440-1450 | | | | | 350 | 7,9-8,1 | | |
| ②a | 4,0 | 1470-1500 | | | | | 440 - 490 | = 2,0 | | |
| | 1635 | 0,3-1,7 | | | | | 600 | 0,3-1,0 | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop Test oil temp. 40°C (104°F) | | ⑥ Rotational-speed limitat. Note: changed to ... rev/min | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ⑤ ④a Idle stop | |
|--|-------------------------------------|---|----------------------------------|-------------------------------------|-----------------------------|--------------------------------------|----------------|-----------------------|
| rev/min | cm³/1000 strokes | | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| (2) LDA 1380 | 0,7 bar 54,5-56,5 (52,5-58,5) | 1440-1450* | LDA 1000 | 0,7 bar 60,2-62,2 (58,2-64,2) | 100 | 78,0-88,0 bei 16,4- 16,8 mm RW | - | - |
| | | | 600 | 65,2-67,2 (63,2-69,2) | | | | |
| | | | LDA 500 | 0 bar 53,0-55,0 (51,0-57,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

| Pump/governor | Setting | Measurement | | Control rod travel- diminution difference mm (1) |
|---|----------------------|----------------------|------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm | |
| PES 6 A..RS 2596 +RSV..AOC 1141 L (1) B | 0,70 | 0 | 0,38 | 12,6 - 12,7 11,2 - 11,3 12,4 - 12,5 11,8 - 12,0 |
| (2) | 0,52 | 0,70 | 0,21 | 12,3 - 12,4 10,4 - 11,5 12,0 - 12,1 10,8 - 11,0 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

En

Locking at 0,45 - 0,55 bar
Unlocking at 0,25 - 0,35 bar

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v 2

4. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596 RQV 300-1400 AB 1151 L

Komb.-Nr. 0 400 846 481

supersedes 8.82
company: Daimler-Benz
engine: OM 352 A
124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,00-2,10 \\ 1,95-2,15 \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1400 | 11,5+0,1 | 7,7 - 7,8 | 0,3(0,45) | | | |
| 300 | 7,9-8,1 | 0,9 - 1,5 | 0,2(0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------|--------------------------|---------------------------------------|------------|--------------------------|----------------------------|---------------------------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1500 | 15,2-17,8 | - | - | - | ca. 24 | 100 300 | min. 9,5 7,9-8,1 | 250 630 1020 1400 | 0,7- 0,9 3,8-3,9 5,3-5,4 7,7 |
| ca. 61 | 10,5 4,0 1700 | 1440-1450 1560-1590 0-1,0 | | | | 350- 500 | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|---|---|--|---|--|-------------------------------|-----------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1400 | 0,7 bar 77,0 - 78,0 (75,0 - 80,0) | 1440-1450* | LDA 600 | 0,7 bar 63,0 - 65,0 (61,0 - 67,0) | 100 | 73,0 - 83,0 (70,0-86,0) | - | - |
| | | | LDA 450 | 0 bar 42,0 - 44,0 (40,0 - 46,0) | | bei 14,8- 15,2 mm RW | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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L3

L3

D. Adjustment Test for Manifold Pressure Compensator

MS 5,7 7 8

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement | | Control rod travel diminution difference mm (1) |
|-------------------------------------|---------------------------------|----------------------|----------------------|---|
| | | Gauge pressure = bar | Gauge pressure = bar | |
| PES 6 A..RS 2596 mit ..AB 1151 L | 0,70 | | | 11,5 - 11,6 |
| | | | 0 | 10,2 - 10,3 |
| | | | 0,29 | 11,1 - 11,2 |
| | | | 0,18 | 10,6 - 10,8 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 n
3. Edition

En

PE 8 A 95 D 410 LS 2609 RQV 300-1250 AB 1128 L
Komb.-Nr. 0 400 648 129
1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45 ° ±0,5 ° (±0,75 °)

supersedes 3.83
company: KHD
engine: BF 8 L 413 F
235 kW (320 PS)
2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,8-1,9}
(1,75-1,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1250 | 11,6+0,1 | 11,6-11,7 | 0,3(0,6) | | | |
| 300 | 6,6-6,8 | 1,6-2,2 | 0,3(0,5) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|---------------------------|--------------------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1250 | 15,2-17,8 | - | - | - | ca. 15 | 100 300 | min. 8,2 6,6-6,8 | 250 580 920 1250 | 0,5-0,8 2,9-3,1 4,7-4,9 7,7 |
| ca. 66 | 10,6 4,0 1450 | 1290-1300 1370-1400 0 - 1,0 | | | | 380-550 | | | | |

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 | | Rotational speed limitation intermediate speed 4a | Fuel delivery characteristics high idle speed 5a | | Starting fuel delivery idle switching point 6 | | Torque-control travel 5 | |
|--|---|--|--|---|--|--|-------------------------------|----------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1250 | 0,7 bar 116,0-117,0 (114,0-119,0) | 1290-1300 * | LDA 750 | 0,7 bar 121,0-124,0 (119,0-126,0) | 100 | 130,0-140,0 (127,0-143,0) = 14,6-14,8 mm RW | 1250 750 1000 | 11,6+0,1 12,2+0,1 12,1+0,2 |
| | | | LDA 500 | 0 bar 101,5-103,5 (99,5-105,5) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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9.85

L5

L5

D. Adjustment Test for Manifold Pressure Compensator

KED 12,7 n - 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|----------------------------------|---------------------------------|-------------------------------------|---|
| PE 8 A .. LS2609 + .. AB 1128 | 0,70 | 0 0,27 0,23 | 12,2-12,3 11,4-11,5 12,0-12,1 11,6-11,8 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 6

5. Edition

En

PES4A85D 410/3 RS 2610 RSV 325-1150 A8B 2102 L
A8C 2102 L

supersedes 9.84
company KHD
engine F4L913
55 kW tractor
D 7807-S 16

Komb.-Nr. 0 400 864 051

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1175 | 11,2+0,1 | 6,3-6,5 | 0,3(0,45) | | | |
| 325 | 8,7-8,9 | 0,7-1,3 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|----------------------------|------------------------------------|--------------------------|---|---|--|-------------------|----------------------------|------------------|-----------------------------|
| | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-0,7 X = 4,0 | - | - | - | ca. 20 | 325 | 8,3 | 1150 | 11,2-11,3 |
| ca. 56 2a | 10,2 | 1215-1225 | | | | | 100 | min. 19,5 | 500 | 12,2-12,3 |
| | 4,0 | 1280-1310 | | | | | 325 | 8,7-8,9 | 870 | 11,9-12,0 |
| | 1430 | 0,3-1,4 | | | | | 460-520 = 2,0 | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery idle 5 | | 4a Idle stop | |
|--|------------------------------------|--|----------------------------------|------------------------------------|-------------------------------|------------------------------------|--------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1175 | 63,0-65,0 (61,0-67,0) | 1215-1225* | 800 | 60,0-62,0 (57,5-64,5) | - | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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L7

L7

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 i 1

3. Edition

En

PE 6 A 95 D 410 LS 2621 RQV 300-1250 AB 1195 L
Komb.-Nr. 0 400 646 271

1- 6- 5 - 4 - 3 - 2

0-75-120-195-240-315° ± 0,5° (± 0,75 °)

supersedes 5.84

company: KHD

engine: F 6 L 413 F
141 kW / 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1250 | 10,4+0,1 | 9,2 - 9,4 | 0,35(0,6) | | | |
| 300 | 6,4-6,6 | 0,8 - 1,4 | 0,35(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------|--------------------------|---------------------------------------|---------|--------------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1380 | 15,2-17,8 | - | - | - | ca. 18 | 100 | min.8,0 | 300 | 1,2-1,3 |
| ca. 51 | 9,4 | 1290-1300 | | | | | 300 | 6,4-6,6 | 500 | 2,6-2,9 |
| | 4,5 | 1365-1395 | | | | | 380-440 | ≈2,0 | 1000 | 5,4-5,6 |
| | 1500 | 0 - 1,0 | | | | | | | 1300 | 7,7-7,8 |
| | | | | | | | | | 1380 | 8,7 |

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1250 | 91,5 - 93,5 (89,5 - 95,5) | 1290-1300 * | 750 | 93,0-96,0 (90,5-98,5) | 100 | 116,5-126,5 (113,5-129,5) | 1250 | 10,4+0,1 |
| | | | | | | | 750 | 10,8+0,1 |
| | | | | | | | 850 | 10,6+0,2 |
| | | | | | | | 950 | 10,4+0,2 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d 3

1. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1400 A 8 C 707 L

Komb.-Nr. 0 400 864 060

supersedes: KHD
company: BF 4 L 913
engine: 78 kW / 2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,5-2,6} (2,45-2,65) mm (from BDCRW = 9,0 - 12,0 mm)

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1250 | 12,7+0,1 | 8,3 - 8,4 | 0,3 (0,45) | | | |
| 325 | 8,4-8,6 | 0,9 - 1,5 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 22 | 325 | 8,0 | 1250 | 12,7-12,8 |
| | X = 5,25 | | | | | | 100 | min. 19,5 | 500 | 13,6-13,7 |
| ca. 62 | 11,7 | 1290-1300 | | | | | 325 | 8,4-8,6 | 1015 | 13,1-13,3 |
| 2a | 4,0 | 1390-1420 | | | | | 660 - | 720 = 2,0 | | |
| | 1560 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|-------------------------------|--------------------------|---------|----------------------------------|---------|--------------------------------------|---------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ... | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| LDA | 0,7 bar | 1290-1300* | LDA | 0,7 bar | 100 | 115,0-125,0 | - | - | - |
| 1250 | 82,5 - 83,5 (80,5 - 85,5) | | 850 | 84,5 - 86,5 (82,0 - 89,0) | | (112,0-128,0) =18,6-19,0 mm RW | | | |
| | | | LDA | 0 bar | | | | | |
| | | | 500 | 59,5 - 61,5 (57,5 - 63,5) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

8.85

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L9

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D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 3 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|--|---------------------------------|-------------------------------------|---|
| PES 4 A..RS 2638 + RSV..A 8 C 707 L | 0,70 | 0 0,41 0,25 | 13,5 - 13,6 12,3 - 12,4 13,2 - 13,3 12,8 - 13,0 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d 2

5. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1150 A 2 C 707-1 L
Komb.-Nr. 0 400 864 061

supersedes™
KHD
company BF 4 L 913
engine 67 kW / 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port opening at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 12,7+0,1 | 8,2 - 8,3 | 0,3 (0,45) | | | |
| 325 | 8,1-8,3 | 1,0 - 1,6 | 0,25(0,45) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel | | Intermediate rated speed | | | 4 Control-lever deflection in degrees 7 | Lower rated speed | | 3 Torque control | |
|---|--------------------|------------|--------------------------|---|---|--|-------------------|-----------------------|------------------|-----------------------|
| | mm | mm rev/min | 4 | 5 | 6 | | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 2 | 3 | | | | | 8 | 9 | 10 | 11 | |
| loose | 800 | 0,3-0,7 | - | - | - | ca. 21 | 325 | 7,7 | 1000 | 12,7-12,8 |
| | | X = 4,25 | | | | | 100 | min. 19,5 | 500 | 13,7-13,8 |
| ca. 43 | 11,7 | 1040-1050 | | | | | 325 | 8,1-8,3 | 800 | 13,3-13,5 |
| 2a | 4,0 | 1175-1205 | | | | | 655 - 715 = 2,0 | | 900 | 12,9-13,1 |
| | 1340 | 0,3-1,4 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limit Note: changed to ... rev/min | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|--|---|--|----------------------------------|---|-----------------------------|-------------------------------|--------------|-----------------------|
| rev/min | cm ³ /1000 strokes | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1000 | 0,7 bar 81,5 - 82,5 (79,5 - 84,5) | 1040-1050* | LDA 800 | 0,7 bar 86,5 - 88,5 (84,0 - 91,0) | 100 | 115,0-125,0 (112,0-128,0) | - | - |
| | | | LDA 500 | 0 bar 61,5 - 63,5 (59,5 - 65,5) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

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L11
L11

D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference mm (1) |
|---------------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | |
| PES 4 A..RS 2638 + RSV..A2C 707-1L | 0,70 | 0 | 13,7 - 13,8 |
| | | 0,45 | 12,1 - 12,2 |
| | | 0,29 | 13,3 - 13,4 |
| | | | 12,5 - 12,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 1

5. Edition

En

PES 3 A 85 D 410/3 RS 2642
Komb.-Nr. 0 400 863 007

RSV 325-1150 A 8 B 2102-1 L

supersedes 5.84
company KHD
engine F 3 L 913
42 kW/2300 min⁻¹
tractor
D 6007-S 23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,5 - 2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 11,8+0,1 | 6,6-6,7 | 0,3 (0,45) | | | |
| 325 | 8,9-9,1 | 1,7-2,3 | 0,2 (0,4) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 18 | 325 | 8,5 | 1150 | 11,0-11,1 |
| | x = 1,75 | | | | | | 100 | min. 19,0 | 700 | 11,8-11,9 |
| ca. 52 | 10,0 | 1190-1200 | | | | | 325 | 8,9-9,1 | 1050 | 11,5-11,7 |
| 2a | 4,0 | 1240-1270 | | | | | 455-515 | = 2,0 | | |
| | 1350 | 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery | | 5 Idle stop | |
|-----------------------------|------------------------------------|--------------------------|--------------|------------------------------------|--------------|------------------------------------|--------------|-------------------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ... | | | | Idle | | 4a | |
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 | |
| 700 | 66,0-67,0 (64,0-69,0) | 1190-1200* | 1150 | 70,5-73,5 (68,5-75,5) | 100 | 133,5-143,5 (130,5-146,5) | 5 | - | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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10.85

L13

L13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6k3
4. Edition

En

PE 6 P 110 A 320 RS 372-1 RSV 250-1100 P5/458 R
Komb.-Nr. 0 401 876 254 P5/458-1

supersedes 5.84
company DAF
engine DKTD 1160
191 kW (260 PS)

See VDT-I-420/114!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 850 | 12,0+0,1 | 13,7 - 14,0 | 0,4 (0,75) | | | |
| 250 | 6,6-6,8 | 0,7 - 1,2 | 0,45(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Loose | 800 | 0,3-1,0 | - | - | - | ca. 21 | 250 | 6,2 | 400 | 12,2+0,1 |
| | x = 4,25 | | | | | | 250 | 6,6-6,8 | 300 | 12,4+0,5 |
| ca. 51 | 11,0 | 1140-1150 | | | | | 640-700 | = 2,0 | | |
| 2a | 4,0 | 1275-1305 | | | | | | | | |
| | 1425 | 0,3 - 1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 | | 4a Idle stop | |
|----------------------------|-------------------------------|--------------------------|--|----------------------------------|-------------------------------|-----------------------------|-------------------------------|---------|-------------------------------|--------------|-----------------------|
| Test oil temp 40°C (104°F) | | Note: changed to | | | | | | | | | |
| rev/min | cm ³ /1000 strokes | rev/min | | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | 8 | 9 | | 9 |
| LDA | 0,7 bar | 1140-1150* | | LDA | 0 bar | 100 | 245,0-285,0 | 250 | 6,7 | | |
| 850 | 136,5-139,5 (134,0-142,0) | | | 600 | 127,5-130,5 (124,5-133,5) | | (241,0-289,0) | | | | |
| | | | | | | | = 19,5 - 21,0 mm RW | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.85

L14

L14

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 3 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 372-1 + . P5/458 u. ..P5/458-1 | 0,30 | 0,70 0 0,26 | 11,8-11,9 12,0-12,1 11,4-11,5 11,5-11,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 120 A 320 RS 372-1 RQ 250/1000 PA 765
 Komb.-Nr. 0 401 846 520
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
 company: DAF
 engine: DWT 210
 210 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) $\overset{RW = 9,0 - 12,0 \text{ mm}}$

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 8 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 600 | 12,8+0,1 | 18,7 - 18,9 | 0,5 (0,9) | | | |
| 250 | 7,4-7,6 | 1,6 - 2,2 | 0,8 (1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | | | Idle speed regulation Setting point rev/min 7 | | | | Torque control rev/min 11 | |
|---|-------------------------------|---|--|-------------------------------|---|--|--------------------------------|--|--|---------------------------------|--|
| Control rod travel mm 2 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Control rod travel mm 8 | Control rod travel mm 9 | Control rod travel mm 10 | Control rod travel mm 12 | | | | |
| 15,6-16,4 | 16,0 | 10,9 | 1035-1050 4,0 1105-1135 1250 0-1,0 | 6,8 | 100 min. 8,0 250 6,7-6,9 330 -370=2,0 | | | 600 13,0-13,1 990 11,9-12,1 800 12,6-12,8 900 11,9-12,2 | | | |

Torque-control travel on flyweight assembly dimension a = $\overset{0,55}{\text{mm}}$ Speed regulation: At $\overset{1035 - 1050 \text{ min}}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|---|------------------------------|--|---|---|--|--|
| cm ³ /-1000 strokes 2 | Control rod stop mm 3a | Control rod stop mm 3b | cm ³ /-1000 strokes 5 | Control rod travel mm 6 | cm ³ /1000 strokes/mm 7 | |
| LDA 600 0,7 bar 187,0 - 189,0 (184,0 - 192,0) | - | LDA 990 0,7 bar 178,0 - 182,0 (175,0 - 185,0) LDA 600 0 bar 141,0 - 143,0 (138,0 - 146,0) | | 100 280,0-320,0 (276,0-324,0) = 19,5-21,0 mm RW | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 z - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|----------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 372-1 + RQ..PA 765 | 0,70 | 0 | 12,8 - 12,9 |
| | | 0,30 | 11,2 - 11,4 |
| | | 0,26 | 12,4 - 12,5 |
| | | | 11,7 - 11,9 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 100 A 720 RS 373

RQ 250/1200 PA 418 R

Komb.-Nr. 0 401 846 397

supersedes 11.82

company: DAF

engine: DHU 825

169 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,50-2,60}{(2,45-2,65)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1000 | 12,3+0, | 12,7-12,9 | 0,35(0,6) | | | |
| 250 | 7,2-7,4 | 0,8-1,2 | 0,35(0,55) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ④ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|---------------------------------|--|-------------------------------|-----------------------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 650 | 15,6-16,4 | 650 | 16,0 | 11,3 4,0 1450 | 1245-1260 1320-1350 0-1,0 | 250 | 6,0 | 100 250 470-510 = 2,0 | min.8,4 7,2-7,4 | 1000 650 | 12,3-12,4 12,3-12,5 |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1245-1260 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery idle speed ⑥ | |
|---|---|---------------------|----------------------------------|-------------------------------------|-------------------------------------|---|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 1000 | 0,7 bar 127,0-129,0 (125,0-131,0) | - | LDA 500 | 0 bar 89,5-92,5 (87,5-94,5) | 100 | 195,0-215,0 (191,0-219,0) = 19,5-21,5 mm RW |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 1 1

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel - diminution difference |
|----------------------------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 373 + RQ..PA 418 R | 0,70 | 0 0,34 0,30 | 12,3-12,4 11,2-11,3 12,0-12,1 11,4-11,8 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF 8,3 L

8. Edition

En

PE 6 P 100 A 720 RS 373
Komb.-Nr. 0 401 846 421

RQ 250/1200 PA 464 R

supersedes 11.82
company: D A F
engine: DHU 825
(169 kW, 230 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke $2,50-2,60$ mm (from BDC)
 $(2,45-2,65)$

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12,3+0,1 | 12,7-12,9 | 0,35(0,6) | | | |
| 250 | 7,2-7,4 | 0,8-1,2 | 0,3(0,5) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Control rod travel mm 2 | | Full-load speed regulation Setting point rev/min 3 | | Test specifications Control rod travel mm 4 | | Control rod travel mm 5 | | rev/min 6 | | Idle speed regulation Setting point rev/min 7 | | Control rod travel mm 8 | | Test specifications rev/min 9 | | Control rod travel mm 10 | | Torque control rev/min 11 | | Control rod travel mm 12 | |
|---|-----------|-------------------------------|------|---|-----------|--|-----|-------------------------------|----------|--------------|-----------|--|-----------|-------------------------------|--|-------------------------------------|--|--------------------------------|--|---------------------------------|--|--------------------------------|--|
| 700 | 15,6-16,4 | 700 | 16,0 | 11,3 | 1245-1260 | 250 | 7,3 | 100 | min. 8,4 | 1000 | 12,3-12,4 | 700 | 12,3-12,5 | | | | | | | | | | |
| | | | | 4,0 | 1320-1350 | | | 250 | 7,2-7,4 | | | | | 470-510 = 2,0 | | | | | | | | | |
| | | | | 1450 | 0-1,0 | | | | | | | | | | | | | | | | | | |

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1245-1260 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | cm ³ /-1000 strokes 2 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | cm ³ /-1000 strokes 5 | | Starting fuel delivery Idle speed rev/min 6 | | Control rod travel cm ³ /1000 strokes/mm 7 | |
|---|---|-------------------------------------|--|----------------------------------|-----------------------------------|---|-------------|-------------------------------------|--|--|--|---|--|
| LDA 1000 | 0,7 bar 127,0-129,0 (125,0-131,0) | - | | LDA 500 | 0 bar 89,5-92,5 (87,5-94,5) | 100 | 195,0-215,0 | | | | | | |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 1

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--------------------------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE 6 P..RS 373 + RQ..PA 464 | 0,70 | 0 0,34 0,30 | 12,3-12,4 11,2-11,3 12,0-12,1 11,5-11,7 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 110 A 720 LS 375 RQ 250/1100 PA 335 DR
Komb.-Nrn. 0 402 046 179, 0 402 046 211,
0 402 046 175

superseded 85
company: MAN
engine: D 2566 MT(F) (1)
206 kW (280 PS)
MAN-Nr. 1-7979
D 2566 MTF-Tropen
196 kW/2200 min⁻¹
(2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC) cyl. 6; RW = 9,0 - 12,0 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 12,4+0,1 | 14,6-14,9 | 0,4(0,75) | | | |
| 250 | 7,3-7,5 | 1,0-1,5 | 0,45(0,75) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings (1)

| Checking of slider PRG check ① | | Full-load speed regulation ④ | | | | Idle speed regulation ⑤ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|-------------------------------|--|--------------------------------|---------------------------|--|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | Test specifications rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 600 VH = | 19,2-20,8 max. 46° | 600 | 20,0 | 11,4 4,0 1350 | 1145-1160 1190-1220 0-1,0 | 250 | 7,4 | 100 min. 8,9 250 7,3-7,5 355-395 = 2,0 | | 1100 700 870 970 | 12,4-12,5 13,3-13,4 13,0-13,2 12,5-12,8 |

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|---|---|---------------------|----------------------------------|---|--|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 1100 | 0,7 bar 147,0-149,0 (143,5-151,5) | - | LDA 500 | 0,2 bar 123,0-127,0 (120,0-130,0) | 100 | 225,0-245,0 (221,0-249,0) |
| LDA 700 | 0,7 bar 157,0-161,0 (154,0-164,0) | | LDA 500 | 0 bar 110,0-113,0 (107,5-115,5) | | |

Checking values in brackets

B Governor Settings

(2)

MAN 11,1 q - 2 -

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | | | | |
|---------------------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------|-----------------------|-----------------------|-----------------------|----------|-----------------------|-----------|-----------------------|---------|-----------------------|--|
| ① | | Setting point | | Test specifications | | ④ | | Setting point | | Test specifications | | ⑤ | | ③ | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | |
| 600 | 19,2-20,8 | 600 | 20,0 | 11,4 | 1145-1160 | 250 | 7,4 | 100 | min. 8,9 | 1100 | 12,4-12,5 | | | | |
| VH = | max. 46° | | | 4,0 | 1190-1220 | | | 250 | 7,3-7,5 | 700 | 13,3-13,4 | | | | |
| | | | | 1350 | 0 - 1,0 | | | 355-395 | = 2,0 | 870 | 13,0-13,2 | | | | |
| | | | | | | | | | | 970 | 12,5-12,8 | | | | |

Torque-control travel on flyweight assembly dimension a **0,2** mm Speed regulation At **1145-1160 min⁻¹** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp 40°C (104 F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|--|-------------------------------|------------------|-------------------------------|-------------------------------|--------------------------------------|------------------------------------|
| ② | | ③a | ③b | | ⑥ | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes / mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| (2) | | - | LDA | 0,2 bar | 100 | 215,0-235,0 |
| LDA | 0,7 bar | | 500 | 115,0-119,0 | | (211,0-239,0) |
| 1100 | 139,0-141,0 | | | (112,0-122,0) | | |
| | (138,0-142,0) | | LDA | 0 bar | | |
| LDA | 0,7 bar | | 500 | 103,0-107,0 | | |
| 700 | 150,0-154,0 | | | (101,0-111,0) | | |
| | (147,0-157,0) | | | | | |

Checking values in brackets

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|--|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PES 6 P .. LS 375 + RQ .. PA 335 DR | 0,70 | 0 0,20 0,32 | 13,3-13,4 11,3-11,4 11,8-11,9 12,6-12,8 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En